NOV 15 1914

Vol. III APRIL No. 4

1914

The Journal of the American Pharmaceutical Association

PUBLISHED MONTHLY
BY THE ASSOCIATION
AT COLUMBUS OHIO

W. J. N.

THE STONEMAN PRESS

62nd ANNUAL CONVENTION, AUGUST 24-29, DETROIT, 1914

Specify MERCK'S

"ORIGINAL PACKAGES"

Contents for April, 1914

EDITORIAL:
Senate Amendments to the Harrison Bill, 479—The Bichloride Situation, 482—Price Standardization, 484—Proposed Entertainments at the Detroit Meeting 489

SCIENTIFIC SECTION:
Individual Variation in Belladonna Plants as a Basis for Improvement by Selection, 492—Preparation of Pure Sucrose and Dextrose Caramels, 495—New Form of Separatory Funnel, 498—Note on the Preparation of Collodium Membranes for Dialysis 499

SECTION ON PHARMACOPOEIAS AND FORMULARIES:
The Cause of Adulterated Preparations 500

SECTION ON EDUCATION AND LEGISLATION:
Suggestions on Qualifications to Teach in Colleges of Pharmacy 503

SECTION ON PRACTICAL PHARMACY AND DISPENSING:
A Method of Handling Stronger Ammonia Water, 506—A New and Satisfactory Formula for Liquor Antiseptions, 507—A New and Satisfactory Formula for Liquor Antiseptious Alkalinus 505

SECTION ON COMMERCIAL INTERESTS:
The Art of Making a Sale 509

CONTRIBUTED AND SELECTED:
Abstract of U. S. P. Changes—Part 3, 521—A Colorimetric Method for Citral, 552—The Detection of Added Methyl Salicylate, 556—Infection and Immunity—A Review 553

PAPERS READ BEFORE LOCAL BRANCHES:
The Laboratory Equipment of the Pharmacist, 569—The Patent Medicine Problem, 572—Petrolatum Liquidum, 577—The Renewed Interest in Paraffin Oil 580

OF GENERAL INTEREST:
National Association of Boards of Pharmacy, 581—National Food Trades Conference, 581—National Association of Manufacturers of Medicinal Products, 587—Convention of American Druggists' Syndicate, 589—Resolutions Adopted by the National Drug Trade Conference, 590—Brief in Behalf of the Hughes-Bacon Bill 592

EDITORIAL NOTES:
Professor Raubenheimer Retires from Editorial Work, 595—Chairman of the Scientific Section Requests Papers, 595—Winner of the Betzet Prize, 595—Prescriptions 5000 Years Old, 595—St. Louis College Makes Changes in Tabracy, 596—Druggists' Circular Changes Editors, 596—The Quality of Prescriptions, 596—Dr. William C. Alpers Unites with Cleveland School of Pharmacy, 596—Request from the Historical Section 597

PROCEEDINGS OF THE LOCAL BRANCHES:
St. Louis Branch, 598—New York Branch, 598—City of Washington Branch, 599—Denver Branch, 600—Nashville Branch, 601—Northwestern Branch, 602—Chicago Branch, 606—Philadelphia Branch, 606—Pittsburg Branch 606

THE PHARMACIST AND THE LAW:
Abstract of Judicial Decisions 607

OBITUARIES AND MEMORIALS:
James Gordon Steele 610

COUNCIL BUSINESS:
Council Letter No. 13 611

U. S. PUBLIC HEALTH SERVICE 614

OFFICIAL ROSTER ..... (i-xxiii)

DEPARTMENT OF PHARMACY—UNIVERSITY OF MARYLAND

(MARYLAND COLLEGE OF PHARMACY 1841-1914)

Lombard and Greene Sts., Baltimore Md.

Complete Course of Lectures and Laboratory Instruction, covering two sessions of thirty-two weeks each. Catalogue giving full information mailed on application to the Dean.

THE SCHOOL OF PHARMACY OF THE UNIVERSITY OF ILLINOIS

CHICAGO COLLEGE OF PHARMACY

The Fifty-fifth session begins September 22, 1914.

Courses leading to the degree of Graduate in Pharmacy and Pharmaceutical Chemist are offered. For announcement or other information, address

W. B. DAY, Acting Dean, Michigan Boulevard and Twelfth Street, Chicago, Illinois.

The Journal of the American Pharmaceutical Association

Volume III **APRIL, 1914** **No. 4**

Office of Publication, 79-89 North Third St., Columbus, Ohio.

Subscription, $4.00 per annum, within the United States. To Canada, $4.35. To other foreign countries in Postal Union, $4.50 per annum.

Entered at the Postoffice at Columbus, Ohio, as Second-Class matter.

THE SENATE AMENDMENTS TO THE HARRISON BILL.

AS is well known, the Harrison Bill, (H. R. 6282) seeks to require registration with Collectors of Internal Revenue of every person who produces, deals in, sells or distributes opium or coca leaves, their derivatives or preparations; and also levies upon such registrants a tax of $100 annually.

Orders for any of the named drugs or preparations must be written in duplicate upon official order blanks which can be obtained only from collectors of internal revenue.

Persons not registered as dealers cannot obtain these order blanks, and hence cannot purchase the drugs for resale or consumption, though certain provisos permit physicians, dentists and veterinarians to dispense to their bona fide patients, and pharmacists to fill the prescriptions of physicians, dentists, and veterinarians without the furnishing of an order blank by the patients to whom they are dispensed.

By this means the bill aims to trace the drugs from their entry into the country to the hands of their last distributors, and thus afford to the several states the opportunity of obtaining evidence necessary to secure conviction for violation of the state laws.

The bill does not in express terms attempt to prohibit the sale of the drugs, because such a prohibition would not be within the powers conferred upon Congress by the Federal Constitution. Incidentally, however, it would operate as a strong deterrent to the illegitimate traffic by the requirement of the registration of dealers, the use of a specified official order blank which can be obtained only from collectors of internal revenue, and the evidence which the operation of the act will provide for the use of local prosecutors.

The bill has been reported out by the Committee on Finance, which has had it under consideration, and is now upon the Senate Calendar as No. 213.

In its passage through the committee the bill received several important amendments. One of these is the inclusion of dealers in hypodermic syringes or needles adapted to administer any of the drugs, who will now be required to register the same as dealers in the drugs themselves, and the sale of these articles can be made only on orders written upon the official order blank.

The wisdom of this amendment is not apparent. The possession of a hypodermic syringe or needle is not essential to the use of the drugs by habitues, and as a matter of fact the vast majority of them do not employ the hypodermic syringe at all. Hypodermic syringes are, however, used extensively as containers of serums and other medicaments in order to insure their perfect sterility up to the moment of administration. Why should the sale of such necessary medicaments be hampered by a restriction which is altogether useless as a measure for controlling the use of habit-forming drugs?

Two other amendments make it clear that officers of the State and Federal Governments may make purchases of the drugs for the various departments of the Army and Navy, and for government and state hospitals, and may have possession of them for such public purposes, without registration as dealers. Singularly enough, however, no means are provided whereby the dealer may sell to such persons without an order blank.

Another amendment, and one which may greatly affect the efficiency of the Act, is the change made in Sub-section a of Section 2, which originally relieved the physician, dentist or veterinary surgeon from requiring an order blank from his patient, "provided, however, that such physician, dentist, or veterinary surgeon shall personally attend upon such patient." From this proviso the words "personally attend upon such patient" have been stricken out, and replaced by "provided any such physician, dentist or veterinary surgeon shall have been specially employed to prescribe for the particular patient receiving such drug or article."

It is reported that the Committee was induced to make this change through the efforts of a manufacturer of a proprietary asthma cure which is said to contain a small proportion of cocaine, and to be widely used throughout the United States. It is advertised only through the mails, and is not sold through drug stores. Its proprietor is a physician who, it is said, operates by sending blank forms to be filled out by the patient. Since the filling of such a blank and the ordering of the medicine would create a specific contract between the physician and the patient, the amendment will relieve both parties from the obligations of the Act.

While it is possible that the proprietary remedy is harmless enough in itself, and would not be likely to either create or satisfy the cocaine habit, it is unfortunate that the Senate Committee found it necessary to open the door so widely to possible abuse. Any physician who is disposed to supply habitues with the drugs will be able to claim, and to prove by his own testimony and the testimony of the alleged patient, that he was specially employed in the case although he may never have seen the person.

The original reading that the physician should "personally attend such patient," would have required at least one bona fide consultation and examination.

The defect, unfortunately, is one which cannot be cured by state legislation,

because the drugs can be sent direct from the manufacturer in one state to a consumer in another, and thus will be under the protection of interstate commerce.

In addition to the above amendments, several others of minor character have been inserted here and there throughout the bill, such as extending the application of the act to the territories and Insular Possessions of the United States, and so on, most of which are unobjectionable. One, however, requires the statement on the label of the quantity of drug contained in certain preparations which are excepted from the operations of the Act, namely, those which do not contain more than 2 grains of opium, ¼ of a grain of morphine, 1/12 of a grain of heroin, or 1 grain of codeine, etc., in a fluid- or avoirdupois-ounce. If this applies only to proprietary remedies, it is needless, since the subject is already covered by the Food and Drugs Act. If it can be held to apply to medicines compounded on physicians' prescriptions, it will be highly objectionable to both pharmacists and physicians, since the reason for excepting such preparations from the operations of the act is that they are not calculated either to create or satisfy a drug habit.

The Senate Committee not only made amendments of its own, but rejected those recommended by the National Drug Trade Conference at its January meeting. One of these recommendations was to strike out from Sub-section b of Section 2, the words "registered under this Act," so that the pharmacist would not be liable if he filled the prescription of a physician who was not registered under the act. The recommendation was a proper one, made after due consideration, and should have been heeded by the committee. Fortunately, the other requirements of the bill are such that practically all physicians will be compelled to register, and hence the danger to the druggist who is reasonably cautious and acts in good faith will not be great.

Another recommendation which the Senate Committee refused to adopt was one to substitute the word "dealer" for the word "druggist" in Sub-section b of Section 2. This recommendation was made because it has been alleged that the act would be unconstitutional, for the reason that it would favor a particular class of dealers, to wit, pharmacists, over all other classes of dealers, in that while paying the same tax as the pharmacist, the latter would have special privileges in dispensing.

The effect of the Senate Committee's amendments was carefully considered at a special meeting of the Executive Committee of the National Drug Trade Conference held at Washington, D. C., March 18, when a memorial was adopted setting forth the objections of the Conference to the changes made in the bill, and renewing its recommendations for the changes asked for by the Conference at its January meeting.

Some of the friends of the bill are predicting its early passage in practically its present form, but it would not be greatly surprising if the number of other pending measures of greater political importance, and the pressure of congressmen for an early adjournment should result in a postponement of the bill until another session.

J. H. BEAL.

THE BICHLORIDE SITUATION.

ORDINARILY the stream of Council business, as reported in the letters which are issued between meetings, flows with scarcely a ripple of debate. This is not because the Councilors are inattentive to the letters or are afraid to express their opinions in opposition, but rather because propositions of a controversial nature are generally held for consideration at the annual meeting, and the questions submitted for mail vote are usually of a formal kind not calculated to provoke debate. Council Letter No. 13, which appears in this issue, and in which Chairman Hugh Craig, of the Section on Education and Legislation, and President George M. Beringer discuss the advisability of adopting a specific shape for bichloride or other highly poisonous tablets, presents an interesting exception to the usual order.

Mr. Craig contends, and his contention is undoubtedly correct, that the frequent cases of alleged accidental poisoning with bichloride tablets are not accidental in fact, but that the tablets are taken with suicidal intention. He also argues that if a person is bent upon self-destruction he will certainly accomplish his purpose, no matter how many restrictions be placed upon the dispensing of poisons, and further, that peculiar shapes or colors for dangerous tablets will not operate as warnings to children.

Mr. Craig's remedy would be to restrict the dispensing of mercury bichloride to physicians' prescriptions, coupled with restrictions which would prevent physicians from leaving such tablets with patients without cautionary wrappings.

Undoubtedly such restrictions would lessen the number of poisonings from bichloride, but this raises the question as to the extent to which such restrictions should be placed upon other poisonous compounds generally and upon dealers other than druggists. If we are to restrict the sale of mercuric bichloride to physicians' prescriptions, why not place the same restrictions upon all drugs which can be used suicidally or which may be taken by mistake for less dangerous ones? And if such restrictions are to be placed upon articles dispensed from drug stores, why should they not be placed equally upon dangerous substances for sale at the paint store or elsewhere? Thoughtless people, while generally ready to applaud restrictions laid upon the druggist in the name of public safety, are generally strongly opposed to legislation that would prevent their obtaining poisonous insecticides and other substances used in agriculture or the arts.

Some years ago the writer, in a paper presented at one of the meetings of this Association, called attention to several state laws which placed heavy penalties upon druggists for selling poisons without certain precautions of labeling and registration, but leaving it open to all other dealers of the state to sell the same articles without restriction. Even at the present time there is a bill pending in Congress greatly limiting the manner in which registered physicians and druggists may sell or dispense mercury bichloride, but not placing any limitation whatever upon its sale by other persons.

Unless we are careful in the endorsement of restrictive legislation, we shall some day awaken to the fact that the druggist is bound hard and fast, while the

paint stores, hardware stores, and other dealers in insecticides are free to sell equally dangerous substances practically without restriction.

The teaching of this is that, since it would be manifestly impossible to restrict the sale of all dangerous poisons to physicians' prescriptions, and manifestly unfair to place such restrictions upon the druggist and leave all other dealers free, then the next best thing, and the thing which is altogether feasible and capable of universal application is to require the indication of the poisonous character of dangerous compounds by appropriate labels, shapes and colors of packages, or other warnings which would appeal to the senses of those who might otherwise handle the articles carelessly. For the would-be suicide, of course, no warning would suffice.

Whatever restrictions are adopted should apply equally to all dangerous substances as well as to those usually handled by the druggist, and to all dealers and distributors alike.

As to the wisdom of the Association's taking over the assignment of the patent which has been applied for by the Norwich Pharmacal Company, on coffin-shaped tablets of mercury bichloride, several considerations present themselves.

If the Association accepts the assignment, it would, of course, accept it simply as a trustee for the public welfare. It would permit all manufacturers to use the design without charge, and would exercise its rights as owner of the patent only in case some one should presume to make use of the design in a freak confection.

If the Association does not accept the assignment tendered by the Norwich Pharmacal Company, the latter will be entitled to prevent any rival manufacturer from using the same design unless licensed for that purpose.

It should be borne in mind that the granting of a patent for a coffin-shaped tablet would not prevent the patenting or copyrighting of other designs, and also that final decision as to what designs shall be lawful or unlawful will remain with the law-making powers.

City councils, state legislatures, and Congress will be besieged constantly for the enactment of bichloride legislation, and will undoubtedly take action. We may protest against such legislation until we are out of breath, without avail. Ordinances and laws will be adopted by the dozen, and no two of them will be alike or in correspondence unless we can set a national standard, as for example, by the adoption by the Pharmacopœia of a specific, or perhaps of several permissible designs, which can be cited for the guidance of the various legislative bodies.

We cannot stop the flood of bichloride legislation, but we can to a large extent direct it into safe and practical channels; and this it seems to me, is the discreet and politic thing to do.

J. H. BEAL.

PRICE STANDARDIZATION.

AT the Second Annual Meeting of the United States Chamber of Commerce held in Washington the week of February 9, last, one of the leading subjects of discussion was that one of paramount importance, not only to the members of our profession but to all retail merchants,—"Price Protection."

This cause which has been so long discussed and which so many times seemed almost to have received its death-blow, was there stimulated into new and vigorous life, one which gives promise of bringing relief to the retail-traders of the nation from the vexatious and distressing conditions which have so long affected them.

There is hope for the patient when the cancerous growth has been removed and there is hope for the retail business-interests of the country when the vicious and cancerous condition which has so harmfully affected trade shall have been eliminated from it.

So all thoughtful and hopeful men turn their eyes toward this gathering as to a harbinger of good tidings as they read of the enthusiasm shown in the hearty support given to this question in such an influential organization as the U. S. Chamber of Commerce, a body representing a membership of more than half a million of the business men of the country.

The session of Friday, February 13, was devoted almost entirely to this important question. The Hon. Joseph E. Davies, the U. S. Commissioner of Corporations, spoke upon the subject, naturally not committing himself upon so important a question, which was one, he said, that "in the matter of living affects very vitally the great body of consumers in this country." He said that the Bureau of Corporations was engaged in making a study of the question and that it was its purpose to make that investigation "fair and impartial, without preconceived bias, prejudice or judgment." Mr. William H. Ingersoll delivered a notable address, in which he said that, "Price Standardization is the term that describes the system best to my mind; not high prices, but standard prices to all, the same thing for the same money to all upon fair and equal terms." He strongly condemned the methods of those who by means of misleading advertisement and misrepresentation filched from their fellow-citizens their good name and the return they were rightfully entitled to by their enterprise, their toil and thought. Mr. Ingersoll's able speech stirred his auditors to applause and at the close of his address he was given an ovation. Mr. Donald Dey, of Syracuse, N. Y., while saying that he looked upon price-cutting as a menace and that some saner method of attracting business should be adopted, counseled delay in seeking legislation to remedy the evil. He felt sure "that when the subject had been brought seriously to the attention of the average merchant that the ethical side would appeal strongly to him, that his views would be changed and with a change of view will come a change of method." In what way this was to be accomplished Mr. Dey did not say, but, judging from past experience in trying to influence the cut-price merchants into a sane way of doing business, his method would bear fruit at about the time the millennium was due.

A Bill, (the Stevens Bill, H. R., 13305), which apparently had its inception at this meeting is given publicity in the Washington News Letter of the Journal of the N. A. R. D. and support for which is asked of all the members of the trade by writing to their representatives in Congress. Deprived of its verbiage the purpose of this bill is to make it "Lawful for a manufacturer to prescribe the sole and uniform price at which each article covered by contract shall be sold." That is, if this bill should become a law, it will make legal that which the Supreme Court decided in the Miles case was unlawful, "was against public policy and void," and manufacturers can lawfully fix the price at which their products shall be sold.

The full text of this bill is as follows:

That in any contract for the sale of articles of commerce to any dealer, wholesale or retail, by any producer, grower, manufacturer, or owner thereof, under trade-mark or special brand, hereinafter referred to as the "vendor," it shall be lawful for such vendor, whenever the contract constitutes a transaction of commerce among the several states, or with foreign nations, or in any territory of the United States, or in the District of Columbia, or between any such territory and another, or between any such territory or territories and any state or the District of Columbia, or with a foreign nation or nations, or between the District of Columbia and any state or states or a foreign nation or nations, to prescribe the sole, uniform price at which each article covered by such contract may be resold: *Provided,* that the following conditions are complied with:

(A) Such vendor shall not have any monopoly or control of the market for articles belonging to the same general class of merchandise as such article or articles of commerce as shall be covered by such contract of sale; nor shall such vendor be a party to any agreement, combination, or understanding with any competitor in the production, manufacture, or sale of any merchandise in the same general class in regard to the price at which the same shall be sold either to dealers at wholesale or retail or to the public.

(B) Such vendor shall affix a notice to each article of commerce or to each carton, package, or other receptacle inclosing an article or articles of commerce covered by such contract of sale stating the price prescribed by the vendor at the time of the delivery of said article as the uniform price of sale of such article to the public, and the name and address of such vendor, and bearing the said trade-mark or special brand of such vendor. Such article or articles of commerce covered thereby shall not be resold except with such notice affixed thereto or to the cartons, packages, or other receptacles inclosing the same.

(C) Such vendor shall file in the Bureau of Corporations a statement setting forth the trade-mark or special brand owned or claimed by such vendor in respect of such article or articles of commerce to be covered by such contract of sale, and also, from time to time, as the same may be adopted or modified, a schedule setting forth the uniform price of sale thereof to dealers at wholesale, and the uniform price of sale thereof to dealers at retail from whatever source acquired and the uniform price of sale thereof to the public, and upon filing such statement such vendor shall pay to the Commissioner of Corporations a registration fee of $10. The price to the vendee under any such contract shall be one of such uniform prices to wholesale and to retail dealers according as such vendee shall be a dealer at wholesale or a dealer at retail, and there shall be no discrimination in favor of any vendee by the allowance of a discount for any cause, by the grant of any special concession or allowance, or by the payment of any rebate or commission, or by any other device whatsoever.

(D) Any article of commerce or any carton, package, or other receptacle in-

closing an article or articles of commerce covered by such contract and in possession of a dealer may be sold for a price other than the uniform price for resale by such dealer as set forth in the schedule provided in the next preceding paragraph (C): First, if such dealer shall cease to do business and the sale is made in the course of winding up the business of such dealer, or if such dealer shall have become bankrupt, or a receiver of the business of such dealer shall have been appointed, provided that such article or articles of commerce shall have first been offered to the vendor thereof by such dealer or the legal representative of such dealer by written offer at the price paid for the same by such dealer, and that such vendor, after reasonable opportunity to inspect such article or articles, shall have refused or neglected to accept such offer, or, second, if such article of commerce or contents of such carton, package, or other receptacle shall have become damaged, deteriorated, or soiled: *Provided*, that such damaged, deteriorated, or soiled article shall have first been offered to the vendor by such dealer by written offer, at the price paid for the same by such dealer, and that such vendor, after reasonable opportunity to inspect such article or articles, shall have refused or neglected to accept such offer, and that such damaged, deteriorated, or soiled article shall thereafter only be offered for sale by such dealer with prominent notice to the purchaser that such article is damaged, deteriorated, or soiled, and that the price thereof is reduced because of such damage.

It may be said that the proposed bill is not as precise in its terms nor does it seem so well-contrived to produce the reform desired as the bill endorsed, we understand by the American Fair Trade League. That law made it imperative upon dealers to fix a selling-price upon their product under penalty of losing the protection of the patent, copyright or trade-mark laws, and also declared it unlawful to sell or to offer goods for sale at a price different from the fixed price, under penalty of a fine of not less than $100.00 nor more than a $1000.00. The proposed law (H. R. 13305) does not forbid, except by inference, the sale of goods at a price differing from that specified by the maker thereof, nor does it provide any penalty for so doing. A court might construe the law to mean that goods should be sold only at the fixed price, and it might not, and nowhere in the proposed law as it is in the other, is it declared unlawful to "break the price." It seems as though the law might just as well be made a positive and an unevadable law, a law "with teeth in it" for those who have shown themselves so unscrupulous and so careless of the welfare of their fellowmen, instead of being one with loopholes through which these selfish persons may escape the consequences of evil doing.

The proposed law is a good one; a step in advance, but a longer stride in the same direction can be made with almost the same effort, by means of which, hope for reform will not be disappointed and the results which all honorable men of the trade have long desired will be achieved.

The Metz Bill (H. R. 13860) is another bill which seeks with much expanse of language to make price-regulation lawful and, in but one way and that a doubtful one does it appear superior to the Stevens Bill. It makes it legal to establish uniform retail selling prices like the former and further provides that any person who "shall violate either the wholesale or retail uniform selling price of a uniform commodity, shall be liable to an action for damages and an injunction at the suit of any proprietor, dealer or consumer who deals in or with or in consuming such uniform commodity."

The text of the Metz Bill is as follows:

To prevent discrimination between different consumers and localities by establishing uniform prices for uniform commodities.

Whereas experience has demonstrated the advantages and protection to the consumer of standard or uniform commodities marketed under the trade-mark of the proprietor who originates the commodity and who by careful and responsible business methods and guaranties, and by constant maintenance of the excellence of the commodity, builds up a reputation and standard or uniform value for the commodity, and who thus creates and owns the good will connected therewith; and

Whereas it is desirable that consumers shall be able to purchase uniform commodities in all localities at uniform prices, whereby to prevent discrimination between different consumers and localities; and

Whereas uneven prices for the same uniform commodity tend to effect discrimination between different localities and consumers, and to depreciate the quality of the commodity, and to destroy competition in that commodity and to monopolize the sale of the same, and to deceive consumers as to the value of the commodity, and otherwise and wrongfully to appropriate and impair the good will of the originating proprietor; and

Whereas under existing law proprietors possessing large capital, resources, and facilities, through their consequent ability to maintain branch establishments or sole agents throughout the country for fixing uniform prices for uniform commodities, are enabled to discourage competition, to deprive retailers of their independence, and to prevent them from handling competing commodities, and otherwise to exercise an unfair advantage over smaller competitors; and

Whereas the increased expense of maintaining branch establishments or sole agencies increases the price of commodities to the consumers; and

Whereas uniform prices facilitate the wide and steady distribution of uniform commodities and thus tend to lower the price to consumers by lowering the cost of production and distribution: Now, therefore,

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the following terms and phrases in this Act are used and inserted with the sole sense, meaning, and definitions now set forth:

A "uniform commodity" is hereby declared and defined to be any article, product, or commodity which enters into interstate commerce, and which is standard or uniform in grade, size, and quality with other articles, products, or commodities of the same price of the same proprietor, and which has affixed, printed, stamped, embossed, engraved, or otherwise marked thereon or applied or attached thereto, in any manner, or to the package, can, bottle, box, or other container, receptacle, or covering of any character whatever, in which the article, product, or commodity is packed, contained, or inclosed, the trade-mark or trade-name of the proprietor of said article, product, or commodity, which trade-mark or trade-name has been properly registered in the United States Patent Office under the terms and provisions of the Act entitled "An Act to authorize the registration of trade-marks used in commerce with foreign nations or among the several states or with Indian tribes, and to protect the same," as enacted February twentieth, nineteen hundred and five, and as now, as well as hereafter, amended, together with the notice of the registration of said trade-mark or trade-name, as required by said Act.

A "proprietor" is hereby declared and defined to be any person, firm, corporation, or association engaged in manufacturing, selecting, packing, distributing, printing, publishing, or otherwise producing or preparing for the market any uniform commodity under a trade-mark or trade-name, owned by said proprietor, and which has been registered by said proprietor, or his predecessors in business,

in the United States Patent Office, under the terms of an Act entitled "An Act to authorize the registration of trade-marks used in commerce with foreign nations or among the several states or with Indian tribes, and to protect the same," as enacted February twentieth, nineteen hundred and five, and as now, as well as hereafter, amended.

A "dealer at wholesale" is hereby declared and defined to be any person, firm, corporation, or association who or which distributes or sells any uniform commodity to any dealer for resale.

A "dealer at retail" is hereby declared and defined to be any person, firm, corporation, or association who or which sells any uniform commodity direct to any consumer.

A "consumer" is hereby declared and defined to be any person, firm, corporation, or association who or which purchases any uniform commodity for ultimate consumption or use.

The expression "interstate commerce," as used herein, is hereby declared and defined to mean commerce between the United States and foreign nations, or among the several states, or between a state or states and places subject to the jurisdiction of the United States, or between any territory of the United States, and in and between such territory or territories and any state or states and the District of Columbia, or places under the jurisdiction of the United States, or between the District of Columbia and any state or states and foreign nations or places under the jurisdiction of the United States.

Sec. 2. That the proprietor of any uniform commodity, entering into interstate commerce, may establish a uniform retail selling price for such commodity to all consumers, wherever located, after making due allowance, at the option of the proprietor, for the actual cost of transportation from the point of production or manufacture of such commodity to the point of retail sale or consumption, by a notice of said uniform retail price applied to or connected with said uniform commodity, or served on the dealer either directly or through the usual trade channels: *Provided,* That the purpose and effect of said uniform retail price is to avoid discrimination between different consumers and localities: *And provided also,* That the proprietor shall file in the Bureau of Corporations, as a public record, under rules to be prescribed by said bureau, a uniform price schedule identifying the uniform commodity, and setting forth the uniform price of sale thereof from the proprietor to all dealers at wholesale, and the uniform price of sale thereof from the proprietor and all dealers at wholesale to all dealers at retail, and the uniform retail price of sale from the proprietor and all dealers at either retail or wholesale, to all consumers: *And provided also,* That new uniform price schedules shall always be filed in the Bureau of Corporations not less than thirty days before sales at newly established uniform prices may lawfully be made by the proprietor, such new schedules to apply only to uniform commodities which have notice of the new uniform consumer's price applied thereto or connected therewith.

Sec. 3. That any proprietor or any dealer at wholesale or retail who shall violate either the wholesale or retail uniform selling price of a uniform commodity entering into interstate commerce by charging or accepting, at wholesale or retail, as the case may be, a less price, directly or indirectly, for said commodity than the wholesale or retail uniform price established by the proprietor, shall be liable to an action for damages and an injunction at the suit of any proprietor, dealer, or consumer engaged in producing, or dealing in or with, or in consuming such uniform commodity.

Sec. 4. That any uniform commodity in possession of a dealer at wholesale or retail may be sold for a price other than the uniform price set forth in the uniform-price schedule filed under section two hereof providing such dealer shall cease to do business and the sale shall be in the course of winding up the business of such dealer, or providing such dealer shall have become bankrupt or a re-

ceiver of the business of such dealer shall have been appointed: *Provided,* That in either case above specified such uniform commodity shall have first been offered to the proprietor by the dealer, receiver, or trustee in bankruptcy, or the legal representative of the dealer, by a written offer at the price paid for the uniform commodity by such dealer, and that such proprietor, after reasonable opportunity to inspect such article or articles shall have refused or neglected to accept such offer, or providing such uniform commodity shall have become damaged, deteriorated, or soiled, and providing that such damaged, deteriorated, or soiled article shall have first been offered to the proprietor thereof by the dealer by written offer, at the price paid for the same by such dealer, and that such vendor, after reasonable opportunity to inspect such uniform commodity, shall have refused or neglected to accept such offer, and providing that such damaged, deteriorated, or soiled article shall thereafter only be offered for sale by the dealer with prominent notice to the consumer that such uniform commodity is damaged, deteriorated, or soiled and that the price thereof is reduced because of such damage.

Sec. 5. That nothing in this Act shall be construed as repealing an Act entitled "An Act to protect trade and commerce against unlawful restraints and monopolies," which became a law on the second day of July, in the year eighteen hundred and ninety.

Comprehensive as this bill is apparently intended to be, with its precise definitions of everything connected with its subject, it does not make clear how a consumer could estimate his damages in a transaction where he had purchased goods at a less price than the one fixed, and the bill is somewhat objectionable because it leaves the punishment of the offender to private initiative. It is possible that this bill, with its provision for the punishment of offenders in this way, may be found acceptable, with a view to after amendment by which those who violate the law may be punished by public prosecution. We urge Price Standardization on the ground of the public weal, not to protect individuals, and we say that anyone who cuts prices is acting against the public interests and it would seem as though they should be punished as others are punished who commit offenses of that nature. But this bill, like the other, is to be commended as marking a distinct and positive advance toward better and more hopeful conditions and as such it should meet the approval of all friends of just and honorable methods in trade.

ERNEST C. MARSHALL.

<□>

PROPOSED ENTERTAINMENTS AT THE DETROIT MEETING.

IN preparing for the August meeting of the American Pharmaceutical Association the various committees on Entertainment, Finance, and Ladies' Program have gotten down to real work, with every determination to make the '14 convention the Banner Meeting of the Association. They have ample "steam" and funds at their disposal, backed up by the very rich attractions which Detroit offers as a Convention City.

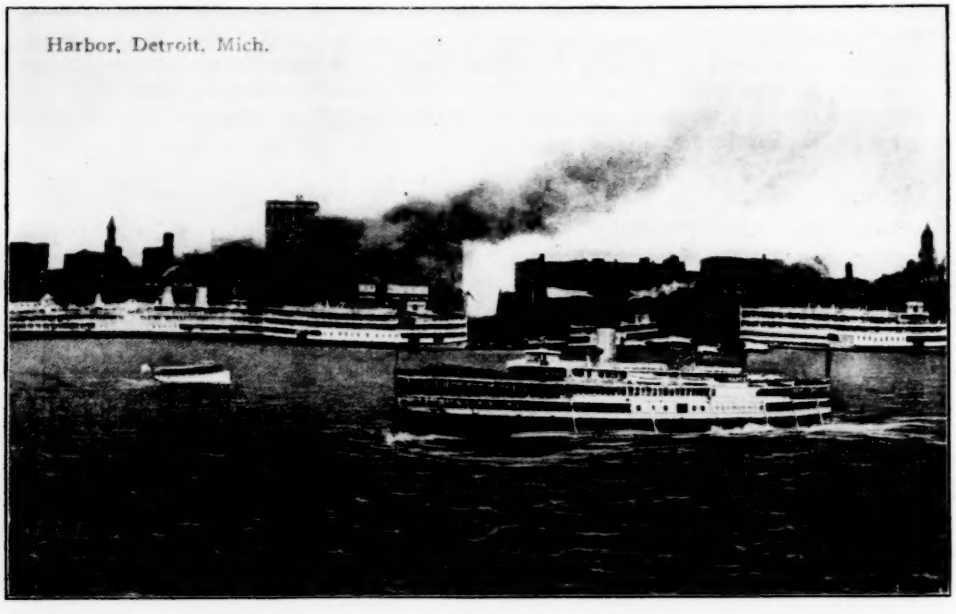
The Michigan travelers of the drug houses, headed by Mr. Frank Kerr, are making it possible to send the Journal of the Detroit Retail Druggists' Association to every druggist in the state. Each issue bears some interesting article or announcement pertaining to the August meeting.

It is expected that the visitors will wish to catch some glimpses of the huge

industrial plants which have made Detroit the greatest manufacturing center in the world for drugs, automobiles, and stoves. The Committee are shaping their arrangements so that small groups can make their own selections for sight-seeing at their convenience. Those desiring it will be welcome to inspect the world-famous Ford plant, or any of the large stove works, or the well-known manufacturing pharmacies.

Entertainment is to be provided for each evening during Convention Week, if this can be done without prejudice to the work of the various sections.

In addition to the regular steamer excursion to the Ste. Claire Flats in which all the delegates and ladies will participate, a special boat ride is on the carpet for ladies only, to charming "Bob-lo" (Bois Blanc), at the mouth of the Detroit



Harbor, Detroit, Mich.

River, where dinner will be served. Theatre parties, card parties, and automobile rides will not be overlooked, though the Committee are not yet able to make definite announcements.

One of the Convention evenings will probably be devoted to a smoker, with proper entertainment.

As for the general attractions by land and water, there is probably not another city on the Continent that offers the varied pleasures which Detroit holds out to the tourist and delegate. Belle Isle, connected by bridge with the city proper, is one of the most beautiful parks in the world. Surrounded by the two arms of the Detroit River, at almost equal distance from the American and Canadian shores, its outside drive is one long feast, charming every inch. The County of Wayne, in which Detroit is situated, is famous for its fine cement motor roads. In every direction one may drive for miles over the smoothest of highways. The facilities for rowing, sailing, and all-day steamer excursions across Lake Erie or Lake Ste. Claire are ideal.

"Where to go" is the perplexing question where there is such embarrassment of riches and the time is limited. Fortunately, the visitor to the August Convention will be spared the necessity of choosing, for he will have the benefit of a carefully planned program in the hands of men who thoroughly know the local ropes.

JOSEPH HELFMAN,
Member of Committee on Publicity.

IODINE IN JAPAN AND SIBERIA.

Crude iodine is produced all along the seacoast of Japan proper, principally in the Prefectures of Chiba, Miye, Kanagawa, Ibaraki, Shidzuoka, and Hokkaido. It is manufactures from a seaweed that is found in great abundance along the southern coast of Japan. The industry is carried on in a small way by numerous individuals and factories. The chief factory is situated at Hayama, near Dzushi, about twenty miles from Yokohama. The subscribed capital of this company is $17,500.

No statistics of production are available, but the customs returns for 1912 show that 22,772 pounds, valued at $44,979, were exported to foreign countries in that year, principally to Great Britain, Germany, Hongkong, and Belgium, in the order named. Buyers and commission merchants or their agents go to the manufacturing districts and buy what they can for the exporters in Yokohama and Osaka.

In a report published in December, 1910, it was stated that plans were being made to open a factory at Olga Bay for the manufacture of iodine from the iodine-bearing seaweed to be had in great quantities in that region. The project was dropped and no such factory has ever been built in the district. A Russian firm made experiments and found that iodine exists in commercial quantities in the seaweed. It is said that this concern sold out whatever interest it may have had to a German chemical company that wished to limit competition.

It is understood that in Japan the peasants burn iodine-bearing plants and ship the ashes to Europe. In the Russian Far East this is not done, as the Russian peasants do not understand the proper method of burning the plants and saving the ashes.

Iodine plants grow about Possiet Bay, Expedition Bay, Olga Bay, and other bays in the vicinity. There is a strong odor of iodine in the atmosphere about Expedition Bay, where a sanatorium has been established for sick soldiers, who sleep on beds filled with iodine plants until they are convalescent. As Expedition Bay is not included in the Russo-Japanese fishing convention of 1907, only Russion subjects can work there.—*Daily Consular and Trade Reports.*

Scientific Section

Papers Presented at the Sixty-First Annual Convention

INDIVIDUAL VARIATION IN BELLADONNA PLANTS AS A BASIS FOR IMPROVEMENT BY SELECTION.

A. F. SIEVERS, CHEMICAL BIOLOGIST, OFFICE OF DRUG PLANT INVESTIGATIONS, BUREAU OF PLANT INDUSTRY, U. S. DEPARTMENT OF AGRICULTURE.

The improvement of medicinal plants through the methods and principles of plant-breeding is beginning to receive considerable attention. The quality of many of our important drug plants as found on the market is far from satisfactory and the inability to secure drugs of sufficient strength has in some cases necessitated the lowering of the Pharmacopœial standard. Such a procedure was followed at the eighth decennial revision of the Pharmacopæia with regard to belladonna and stramonium. The supply of wild belladonna is rapidly becoming exhausted and the demands of the drug trade will soon have to be supplied from the cultivated plant. It is of great advantage, therefore, at this time to make concerted efforts toward securing a type of belladonna plant which, when extensive cultivation of the plant is finally resorted to, will produce a product which is of satisfactory and consistent medicinal strength.

With this object in view, the Office of Drug Plant Investigations of the U. S. Department of Agriculture has had in progress for several years a thorough investigation of the belladonna plant under cultivation with special reference to the variation of the alkaloidal content of the plants with a view toward obtaining data so that through the methods of plant-breeding or selection it might be possible to establish a desirable type of plant. This work is now being carried through the third season, and, while only a beginning has been made, the results are sufficiently illuminating to be worthy of presentation.

The investigation has been conducted mostly at the Arlington Experimental Farm at Arlington, Va. Some additional work has been done at the stations in Wisconsin and Maryland, but the largest number of plants have been under observation at Arlington. After some preliminary work, the investigation was finally started with fifty-nine individual plants in the spring of 1911. The plants were then in their second year. They were carefully watched as to growth and general development, and at five different stages samples of leaves were gathered from each plant. The leaves were taken from all parts of the plant, so as to insure a representative sample. After carefully drying the leaves in a well-ventilated room they were placed in light cloth bags until assayed.

The question of assaying required some special attention in order to devise a method suitable for assaying such small samples as those to be dealt with in this

work. Some samples weighed as little as four grams, dry weight, and since all assays were made in duplicate it was necessary to have a method applicable to two grams of material. After considerable experimentation, the Pharmacopœial method in a modified form was adopted. The principal modification of the method consisted in the use of much greater quantities of menstruum for the extraction of the alkaloids, experience having shown that the quantity recommended in the Pharmacopœia is not sufficient.

The stages of growth at which the leaves were gathered were as follows: The first, during the early part of May before the flowers appeared; the second, during the last of May when the plants were in full bloom; the third, about the middle of June when the berries were developing and in various stages of maturity; the fourth, early in September when the berries were mostly ripe; and the fifth, about the middle of October when the plants had grown considerable new leaves.

In a paper of this kind it is, of course, impossible to give all the analytical data of so many individual plants and only a summary will be given. The maximum, minimum, and average percentages of alkaloids in the leaves of these individual plants at each picking in 1911 were as follows:

Picking.	Percent of Alkaloids in Leaves.		
	Maximum.	Minimum.	Average.
	%	%	%
First	.852	.303	.472
Second	.879	.267	.528
Third	.925	.277	.517
Fourth	.908	.311	.633
Fifth	.733	.200	.519

In the following season, 1912, these same plants were again under observation and the leaves were picked at corresponding stages of growth. The maximum, minimum, and average percentages of alkaloids in these plants at the various stages were as follows:

Picking.	Percent of Alkaloids in Leaves.		
	Maximum.	Minimum.	Average.
	%	%	%
First	.869	.404	.601
Second	.747	.292	.503
Third	.882	.328	.553
Fourth	.806	.359	.568
Fifth	.678	.296	.447

It will be noticed that the range of variation in the individual plants is very great. It is this fact that seems to hold forth great promise of the successful application of plant-breeding and selection methods and it was for the purpose of definitely establishing the existence of such great variations that this investigation was started.

Another fact of vital importance has been established by the two years' work. It has been found that, in a general way, the plants which are very rich or very poor in alkaloids one year will display the same characteristic the following year. Furthermore, these same characteristics are evident at each picking throughout the season. Out of the fifty-nine plants examined, forty were found to retain their characteristics as regards alkaloidal content through both seasons. A few especially characteristic individuals may be given here in detail. Thus No. 3 assayed .384 percent, .375 percent, .277 percent, .549 percent, and .451 percent alkaloids at the different stages in 1911, and .393 percent, .448 percent, and .448 percent in 1912. Again, No. 39 assayed .303 percent, .262 percent, .327 percent, .614 percent, and .451 percent, in 1911, and .404 percent, .365 percent, .525 percent, and .600 percent in 1912. On the other hand, plant No. 7w assayed .558 percent, .831 percent, .832 percent, .727 percent, and .575 percent in 1911, and .782 percent, .666 percent, .646 percent, and .694 percent in 1912. Again, No. 6w assayed .596 percent, .879 percent, .925 percent, 711 percent, and .722 percent in 1911, and .847 percent, .882 percent, .804 percent, and .558 percent in 1912. These four plants illustrate what has been said in regard to the consistency of the individual type from season to season. Plants No. 3 and 39 are manifestly of poor medicinal quality, as compared with the average, while plant No. 6w and plant No. 7w are of exceptional quality. It is plants like the last two named which are being used as a basis for the propagation of a desirable type of belladonna. After the selection of a desirable parent plant, new generations are secured from these through seed or cuttings. The flower of the belladonna plant is usually cross-pollinated, so the question of close pollination must be considered. Thus far, only plants from cross-pollinated seeds have been tested. These plants made their first season's growth last year. Two pickings of leaves were made. These plants were not tested individually, but the leaf samples were taken collectively from all the plants secured from the same parent. It is interesting to note that the plants from the seed of No. 7w and No. 6w showed a high alkaloidal content. Thus plants from No. 7w averaged for the two pickings .804 percent, and those from No. 6w averaged 1.043 percent. It will be seen then that the first generation plants from the two richest parent plants selected showed conspicuous richness in their first season, even though the seeds from which they grew had probably been formed from cross-pollination. These plants, as well as many others, are being carefully observed and tested individually this year, 1913, and it is hoped that a few of very great medicinal strength will be obtained. At the same time, other first generation plants which were grown from inbred seeds from the same parent plants as those above are being grown this year and their leaves will be tested as soon as they have attained a suitable growth. The matter of propagation from cuttings is also being taken up in detail this year.

The plant breeder, in striving to evolve a valuable type of economically important plant, must reconcile two factors. The plant must yield a valuable product and at the same time it must yield enough of this product to make its production a commercial possibility. The problem with belladonna does not differ in this respect. If we are to depend on cultivation for its supply, then such cultivation must be made fairly profitable. The problem, therefore, be-

comes more difficult in that the desirable plant is not one which shows great medicinal qualities alone, but one which at the same time produces an abundance of leaves and roots. In the several years during which this work has been progressing, nothing has been found to indicate that any relationship exists between the physical appearance of the plant and its alkaloidal content. While no such general relationship may exist, there is always the possibility, however, of some of those unusually rich plants possessing at the same time the desired physical excellence which would make them the most valuable type from both the medicinal and the agricultural standpoint.

Much has been said and written concerning the production of alkaloids in belladonna. The influence of various soil constituents, excessive rainfall and drought, sunlight and shade have all been the subject of repeated investigations and the conclusions reached do not lack in variation. Of what value are all such investigations when the range of variation in individual plants is frequently greater than the difference in alkaloidal content attributed to different fertilizers or different climatic conditions? Until a type of plant is found which is at least fairly constant in the quality of alkaloids it produces, vital conclusions cannot be drawn from experiments such as those mentioned. The factor of individual variation must first be eliminated before the influence of environment can be definitely determined.

THE PREPARATION OF PURE SUCROSE AND DEXTROSE CARAMELS.

GEORGE D. BEAL AND HARPER F. ZOLLER, URBANA, ILL.

The attention of the authors was first directed to the preparation of caramels by the failure of the qualitative tests for caramel in a number of liquids to which it had been added as a coloring agent. In order to study these reactions we set out to prepare pure caramel and observe its behavior. A review of the literature on the subject interested us in the composition of caramels, and it is on this account that we have studied carefully the preparation of the caramels in the purest condition.

The recent communications of Beringer and others have induced us to report our findings to this section in the hope that they may be of some assistance. In nearly all papers caramel has been considered as a mixture of the products of the action of heat on sugars. Prof. Beringer has recently given us a method for the preparation of a purified caramel based on the use of alcohol and sodium carbonate, the latter to dissolve any water insoluble products. In our method we have avoided the formation of this insoluble product by a shorter time of heating, rendering unnecessary the use of the alkali.

Caramel may be defined as an intermediate product in the decomposition of a carbohydrate by heat, and its composition varies according to the source. This will be taken up in a later paper, now in preparation. In addition to the caramel a large amount of vapor is formed, consisting in part of water, formalde-

hyde, acetaldehyde, benzalhyde, acetic acid, and carbon dioxide. This is in the particular case of sucrose caramel.

Caramel may be prepared in the laboratory by heating the desired sugar in a flask suspended in a heating bath at a temperature of 210° C. Personally, we prefer a bath of cottonseed oil, although we have used rape-seed oil, paraffin, sulphuric acid and Wood's metal.

Preparation. In our experiments we proceeded as follows: 100 gms. of granulated cane sugar or crystalized dextrose were placed in a 500 cc. Florence flask, suspended in an oil bath together with a thermometer and heat applied. When the temperature of the bath reached 210° C. it was maintained at that point for 30 minutes.

Sucrose begins to melt at 160° and between 180° and 190° it has a clear yellow color, being then in the form of barley sugar. As the temperature rises to 210° the mass begins to foam, rapidly darkening in color, giving off vapors rich in acetic acid and benzaldehyde.

Dextrose begins to melt at 140°. As the temperature reaches 180° it begins to froth and with the rise in temperature to 210° the color changes from grayish white through yellow to orange, then a golden brown and finally brownish black.

When caramelization was completed the flask was removed from the heating bath, partially cooled, then about 250 cc. of water added and the mixture allowed to stand until solution was complete. We found that by caramelizing in this manner no insoluble substance was formed. If a caramel flavor is desired this solution may be used.

Purification. The caramel solution thus obtained contained unchanged sugar and all the decomposition products not yet volatilized. If the solution be evaporated at this point, a sticky mass will be obtained.

There are three methods of purification, only one of which we have found to be satisfactory. Caramel is not as soluble in alcohol as in water, therefore a concentrated aqueous solution of caramel may be precipitated by pouring it into alcohol. This requires a comparatively large amount of alcohol, and to obtain a pure product requires several precipitations, since part of the sugar and probably some of the other decomposition products are precipitated with the caramel. For this reason the method is expensive and unwieldy.

Caramel is unfermentable, although some varieties of mould will grow upon it. If the caramel solution is kept at a temperature of 35° and some yeast added, the sugar may be fermented out in about three days time. To remove the yeast cells, it is necessary to filter the fermented solution through a Pasteur-Chamberlain filter or through a layer of infusorial earth on a filter paper in a Büchner funnel. The caramel prepared in this manner is extremely bitter and acid to the taste. The reason for this is that the fermentation removes only the sugar. Also, the caramel cannot be obtained in a dry condition free from stickiness.

We sought for a cheap and rapid method for freeing the caramel from all other decomposition products as well as from the sugar. Sabaneef and Zsigmondy both state that caramel passes very slowly through dialysis membranes. We found that membranes of either parchment paper or collodion might be used, diffusion through the collodion being more rapid. The preparation of collodion membranes for dialysis is described by one of us in another paper.

A membrane, prepared in a cylindrical beaker or an Erlenmeyer flask is about half filled with the caramel solution, a small glass tube tied into the neck, and the bag suspended in water, with the water and solution at the same level. The diffusion is allowed to continue for thirty-six hours, either in running water, or water which is changed frequently. A small amount of caramel passes through the membrane and is lost. The solution at the end of the dialysis is odorless, and has only a faint bitter taste. It has only a very slight reducing power which we believe to be due to the caramel itself.

The dialysed solution is then evaporated to a thick syrup and poured onto clean glass plates. When the film of caramel becomes dry, it may be scaled off. Working in this way, we obtain a yield of 15 percent of the original weight of sugar.

The caramel forms shiny, reddish- or brownish-black scales, perfectly dry and readily soluble in water or alcohol. Sucrose caramel is more intensely colored than dextrose caramel. The ratio of the color of solutions of the two caramels of the same concentrations is about ten to one. For this reason we recommend cane sugar as the source of caramel, although it is stated on good authority that by far the greater part of that on the market is made from glucose.

As stated above, the composition of caramel varies according to its source. We have found that the composition of each variety of caramel is constant in a number of preparations, by a determination of carbon and hydrogen in the caramels themselves and their benzoyl derivatives, and determinations of their molecular weights.

SUMMARY.

Caramel is best prepared by heating cane sugar or glucose at 210° for thirty minutes. A somewhat higher yield is obtained by longer heating, but some insoluble matter is formed at the same time.

The best method of purification is found to be dialysis in a collodion membrane.

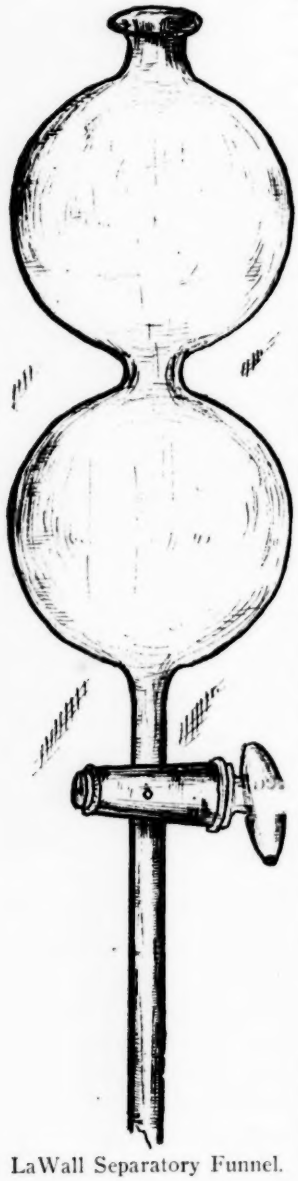
Sucrose caramel solutions are more densely colored than solutions of dextrose caramel of the same concentration.

All of this work is being continued and we hope to report progress from time to time.

CHEMICAL LABORATORY OF THE UNIVERSITY OF ILLINOIS, June, 1913.

A NEW FORM OF SEPARATORY FUNNEL FOR PREVENTING THE FORMATION OF EMULSIONS IN SHAKING OUT WITH IMMISCIBLE SOLVENTS.

CHARLES H. LA WALL, PH. M., PHILADELPHIA.



LaWall Separatory Funnel.

Many methods have been suggested for breaking emulsions when once formed and some few devices have been employed for preventing the formation of emulsions. While watching an extraction with hot chloroform in a Landseidl continuous extraction apparatus the idea occurred to me that if some form of separatory funnel could be constructed which would allow the liquids to pass each other in a thin layer without the necessity of agitation or even rotation the result would be satisfactorily achieved. Accordingly I had several separatory funnels made of a shape shown in the accompanying illustration.

The apparatus consists of two bulbs separated by a very small and short neck (not too small, however, as one was constructed in which the liquids were restrained from passing by the force of capillary attraction.) In one of these bulbs the liquid which is to be extracted is to be placed, adding sufficient water to completely fill the bulb. In the other the immiscible solvent which is to be used for the extraction is to be placed, almost completely filling the second bulb. By then inclining the bulbs at an angle, with the lighter of the two liquids in the lower bulb, the two liquids flow past each other in such a fine stream that almost complete extraction is easily accomplished by repeating the operation two or three times by inverting the funnel, after which the immiscible solvent may be drawn off and replaced by a fresh portion for the completion of the operation.

Such difficult operations as the extraction of mineral oil from a saponified vegetable oil dissolved in water can be readily accomplished without the least tendency on the part of the mixture to emulsify. Indeed, if used with ordinary care it would seem to be almost fool proof in this respect.

The use of this device makes possible the application of the assay process for alkaloidal fluidextracts suggested by me in a paper at the Boston A. Ph. A. meeting (J. A. Ph. A., Vol. 1, p. 39), without the difficulty of emulsification which was experienced by many who tried the method. Indeed, it was the search for

some such device which would make the process referred to more practical, that led to the construction of the form of apparatus described above, which I believe to be practical and to have a wide field of usefulness in the analytical and technical laboratory on either the small or large scale.

The bulbs may be made of any size convenient for the work to be accomplished.

NOTE ON THE PREPARATION OF COLLODION MEMBRANES FOR DIALYSIS.

GEO. D. BEAL, PH. D., URBANA, ILL.

The use of dialysis membranes of collodion is becoming fairly well known, but has been only occasionally mentioned in the literature. This note is intended merely to place the information where it will be available to the members of the Association, no originality whatever being claimed for it.

Membranes of parchment or parchment paper, while properly semi-permeable, require the use of an open vessel as a holder, or else form a very clumsy sort of a bag. The advantage of being able to prepare a dialysis cell of any desired shape or size will be apparent at once. This may be done with collodion, which has been prescribed for a long time as a cement for sealing the holes in a parchment membrane, without taking note of the fact that it could itself be formed into a flexible, semi-permeable membrane, possessing considerable strength.

A glass vessel of the desired shape and size is carefully cleaned with chromic acid cleaning mixture and thoroughly dried, after rinsing well with distilled water. It is best not to use alcohol or ether in the drying of the vessel. Twenty-five to 50 cc. of Collodion U. S. P. (according to the size) are poured in, and the vessel rotated while being inclined on its longitudinal axis, in order to secure an even coating on the entire inner surface, and finally the excess allowed to drain off, rotating continually. The inverted flask is rotated until the membrane is firm to the touch and the odor of ether is gone.

Run a knife blade around the rim of the vessel, to start the film loose, then place a glass tube, with rounded edges, in the mouth of the collodion membrane to permit the escape of air, and pour water between the collodion and the vessel to loosen the film, when it may be withdrawn. The bag should be tested for leakage by filling with water, and kept under water until it is to be used.

It is essential that the vessel be clean and dry, and that the collodion be of the U. S. P. variety. I have never been able to make a good bag from acetone collodion.

We have used these membranes successfully in the purification of caramel, the precipitation of certain proteins by dialysis, the preparation of colloidal hydrated manganese dioxide, and a number of other experiments. They are also being used in biological work, and seem to be generally available and easily prepared.

Section on Pharmacopoeias and Formularies

Papers Presented at the Sixty-First Annual Convention

THE CAUSE OF ADULTERATED PREPARATIONS.

WALTER H. VARNUM, LAWRENCE, KANSAS.

In treating this subject it is my purpose merely to speak of some of the reasons for the lack of conformity to the standards of the Pharmacopœia in the preparations made by retail pharmacists, which condition unfortunately exists not because, I believe, that the majority of the druggists wilfully or maliciously adulterate their preparations, but because of other reasons of which I shall speak. The reason why I believe this, is because, First, I think most druggists are honest; Second, there are as many preparations found to be in excess of the standard strength as under, and Third, that the amount of manufacturing which the ordinary store undertakes would hardly make it worth while for the practice of dishonesty in lessening the strength of its preparations. To ascertain the reason for the lack of uniformity my first step was to inform myself as to the methods of manufacture in a number of stores, and in twenty-five stores of one of our largest cities I found the following to be the methods used to procure some of the U. S. P. preparations which they dispensed.

By dilution from fluidextracts	20
By following the Pharmacopœia	3
By purchase from wholesalers	2

Whether this same proportion would hold good all over the country it is of course impossible to say, but as these stores represent the conditions existing in one city, it may be assumed as a fair statement of general conditions, and when one stops to think that 80 percent of the druggists of the country do not make their pharmaceuticals by the U. S. P. processes, is it any wonder that there is need for Pure Food Inspectors?

Consider the ease with which unintentional mistakes can be made in the measurement of fluidextracts and the effect of such mistakes on the finished products, where a shortage of a few minims of the concentrated liquid means an appreciable difference in the product. This shortage may proceed from inaccurate measurement or from failure to rinse the graduate with the diluting fluid. For instance if 30 cc. are to be used in the manufacture of a preparation and 3 cc. are adherent to the graduate then there is a loss of ten percent in the strength of the finished product. It may be said that a person who is so careless as to allow these cc. of the fluidextract to fail of inclusion in the tincture would be careless in manufacturing by the U. S. P. processes, but if so a mistake of a few grains in his weighing will make no appreciable difference in the strength of the finished

product, and then too the mental training he will acquire by following out the specific directions of the U. S. P. will tend to make him careful in his work.

The catalogs and price-lists of glass manufacturers advertise graduates guaranteed to deliver certain specified quantities. I hope that no one here present is guilty of using these graduates and feels safe in so doing, for there is no graduate made that is capable of delivering an equal amount of all liquids that are measured in drug stores. The only way to secure accurate results would be to have a separate graduate for each liquid from chloroform down to balsams and heavy oils. But suppose that Mr. Druggist has a special graduate for the particular fluidextract that he is measuring—does that mean that it will deliver that quantity as he pours from it or must he let it drain carefully to get his required quantity? And, too, if he then rinses his graduate with his liquid is he going to get more of his concentrate and thus have a stronger preparation in his completed product? Such things tend to lack of uniformity in attaining the proper standards; furnish employment to pure food inspectors and encourage a lack of confidence in the druggist by physicians and laity. If I were going to use fluidextracts in the manufacture of preparations I would buy a pipette to use in measuring them, for only by using accurate measurements can one be sure of getting accurate results. The principle of using graduates guaranteed to deliver certain quantities is all right in theory but it is absolutely impossible to get a graduate which will deliver the goods. If there are any skeptical persons here that doubt this statement let him go home and test its truth by measuring from a guaranteed graduate 30 cc. each of chloroform and Balsam of Peru. Of two preparations, one made by the process of the Pharmacopœia and the other by diluting the fluidextract, there is but one that you can consistently mark as U. S. P.—the former. The other is made by an unofficial method and from a concentrate whose strength is vouched for by a manufacturer, but of which you have no other evidence. One you know to be true to standard, the other you hope will turn out so. Compare the appearances of preparations made by these two methods. They will be found to differ greatly and most of the tinctures made from fluidextracts will form a precipitate from the variances of the alcoholic strength of the diluting fluid from that used to prepare the fluidextract. Not long ago I was forced to prepare some Syrup of Wild Cherry from the fluidextract, the patient being in a hurry for the prescription which my stock of that syrup was insufficient to prepare. After I had prepared it I was ashamed to dispense the preparation, even in a prescription where the color would be somewhat disguised, for instead of the clear red syrup of the official process the product was a cloudy, dark brown syrup. There is much complaint by physicians on account of lack of uniformity in the appearance of standard pharmaceutical preparations, and if they should be supplied with a dark brown syrup of Wild Cherry instead of a clear red one, can you blame them for their just complaint? This was the first time I had ever used this method and it will be long before I do so again. The men who make the United States Pharmacopœia are as learned a group of men, both in the theory and practice of pharmacy, as can be found in the country, and they certainly would not require a busy pharmacist to waste his time in making preparations in the way directed by them, if the shorter way was "just as good."

In this day and age *speed* is the pass-word, but do not fool yourselves into believing that you are saving time and money when you are not getting the best results. The large manufacturers use the U. S. P. methods because they must conform to its standards; their goods must be able to stand government inspection and they must be sure that they are up to standard. As to the cost of manufacturing one's own preparations I have made two calculations, one including the time-cost, and the other excluding it. The first computation was made in order to fairly compare the cost with that of the manufacturing firms. The second was made for the reason that as the work was incidental to the other work of the store, it was thought best not to add the time-cost in figuring the net cost of the preparation. By the first method I find the actual saving to be from 10 percent to 25 percent, and by the second method the saving is from 25 percent to 50 percent. After making a preparation the next step is to test it to see that it is up to the standard required by the Pharmacopœia. I am afraid that the number of pharmacists who see the fine print underneath the directions for manufacture are very few indeed. I doubt if any druggist in the United States who makes his preparations from fluidextracts ever tests them after making. I am also doubtful as to whether there are many of those who make their preparations by U. S. P. methods who submit them to official tests. The fine print which follows the directions for making the preparations is just as important as the rest, if not more so. Nearly every druggist who uses the short method of manufacture has the same excuse to offer, viz., "This way is just as good and it saves a lot of time. I haven't the time to do it the other way." This may be so, but what does he keep registered men for, if not to do this work? If he has enough confidence in them to stand responsible for the prescriptions they prepare, he should have confidence in their ability to manufacture official preparations. This brings us to another question of importance, but which I will not discuss in this paper on account of lack of time. That is the graduation qualification for registration. While I believe it possible for a person to make a success in the drug business without a college training, yet in such a school he is trained in the pharmaceutical art, is made familiar with its literature, its implements and processes, and is taught to use his Pharmacopœia rightfully and usefully. There is of course a class of druggists in our profession which class is found in all lines of work—the incompetent. While this class do not maintain themselves in the drug business as long as in some other lines of work, many of them are in it long enough to bring discredit upon the profession. This class needs nothing more than a mere mention, as to waste time upon discussion of them would be useless and unprofitable.

We have therefore three classes of druggists that are responsible for the lack of uniformity in pharmaceutical preparations: First, the careless druggists who are the most numerous, and who can improve their methods if they will but try to do so; second, the "busy"(?) druggists who plead "lack of time," but who can be converted by being "shown"; third, the incompetent druggist, who will be out of business before he can be "shown" or taught. I hope that there is no one here that belongs to any of these classes, but should there be, it is time for him to change his ways and then if possible to be his "brother's keeper" and try to help him upward into the right path.

Section on Education and Legislation

Papers Presented at the Sixty-First Annual Convention

SUGGESTIONS ON QUALIFICATIONS TO TEACH IN COLLEGES OF PHARMACY.*

ALBERT SCHNEIDER, PH. D., SAN FRANCISCO.

I threatened to prepare a paper on the subject of Qualifications to Teach in Colleges of Pharmacy, but after I thought the matter over somewhat, I got cold feet. I feared that what I might say would not please everybody. As you know, it is practically impossible to please anybody; furthermore, I desire to have it clearly understood that the suggestions which I shall make are not to be taken in any way as personal, or directly applicable to any one institution, or to any one individual. There are simply a few general suggestions that I wish to submit, and if they are worthy of consideration, which I hope they are, they may result in some good.

By qualified teachers in colleges of pharmacy I have in mind the qualifications to have charge of the three departmental heads or divisions of the college of pharmacy, namely: Pharmacy, which is of first importance; second, Chemistry, and third, Pharmacognosy,—using this latter term in the sense that it is used in the California College of Pharmacy, as including general and special botany, and pharmacognosy proper, which includes a lecture course as well as laboratory work, bacteriology, human physiology, urinalysis, special micro-analysis, and such other work as is usually relegated to that division.

We may consider the qualifications to teach under two heads: First, inherited, and second, acquired. I am satisfied—based upon my observation and experience—that no individual, man or woman, should contemplate teaching unless he or she is keenly interested in such work, an interest which amounts to enthusiasm. That enthusiasm manifests itself very early in life, let us say at the age of five or six. You can readily pick out those who will probably make good teachers. The young man or young woman who has a keen ambition to excel along educational lines, has one important qualification to become a teacher. On the other hand, the individual who early in life expresses a predominant interest along commercial lines—who looks upon human activities in the light of the dollar sign—is not qualified, by inheritance, to become a teacher. It is true, we all desire to make a living, and in order to make a living we must interest ourselves in the dollar sign, more or less. Even a teacher in a college of pharmacy wants to live; he has a certain appreciation of the comforts of life; he would like to

*Delivered orally to the Joint Session of the Sections on Education and Legislation, the Conference of Pharmaceutical Faculties and the Association of Boards of Pharmacy.

provide for his family; he would like to send his children to school and give them the advantages of a progressive age. But there are certain reasons, to be mentioned later, which make the attainment of such desires practically impossible.

Next, after inherited qualifications, namely, the thirst for knowledge, comes the ability to convey information to others. This comes with training and experience. Temperamental qualifications are also very important. The individual who gets excited upon the slightest provocation and loses control of himself, is not fit to teach. Such an individual should select some other vocation. The one qualified to teach should be of even temperament, without being phlegmatic or indifferent, because an indifferent person cannot possibly encourage or produce enthusiasm in others. The teacher must have the power of enthusing the pupil in the work. Temperamental qualifications are also inherited. They cannot be taught, nor can they be greatly developed. They are born with the child.

Now, coming to the acquired qualifications: First, educational: It is simply a question of our conception of what constitutes an education. According to the present status of our educational system, it consists first of the grammar grades and inclusive of the high school. Every one who contemplates teaching, whether in the grades, in a college of pharmacy or in a university, certainly should have a high school training or its educational equivalent. Next comes the university and college work. According to the present educational standards and conditions, no man or woman is qualified to teach in a college who has merely had the courses of instruction as given in the college in which he or she contemplates to teach. He must have an educational acquisition wider and broader than that given by the college in which he desires to teach. That would mean he must have had more than the college course, or the university course. Some of this can be had in colleges of pharmacy, (the third—or fourth-year courses), in universities, in medical colleges, and in the higher institutions of learning. I do not wish to specify the particular degrees or diplomas which stand for such educational qualifications. Unfortunately, there are no educational institutions which prepare teachers for colleges of pharmacy; neither are there institutions that prepare especially to teach in colleges of medicine. We must simply utilize the educational facilities that are available.

So, therefore, to summarize: First, the inherited qualification referred to; secondly, the educational qualifications very briefly stated; namely, a university degree, say Bachelor of Science, or let us say Doctor of Philosophy. The teacher who contemplates taking charge of the work in the department of pharmacognosy, etc., should have specialized along botanical lines, as that is the only subject taught in a university which is more directly applicable.

So much in regard to the educational qualifications. The one who contemplates teaching pharmacy or chemistry should specialize along chemical lines, completing the regular or required courses in chemistry as taught in a university or some other higher institution of learning, plus some graduate work along chemical lines. The one to teach human physiology should have a course in physiology equivalent to that given in a first-class university of medical college, etc.

This is not all. I have merely outlined the foundation. These are not sufficient. The recent graduate from a university is not yet qualified to take charge

of a department in the college. He must have, in addition, a certain amount of experience. This he can get in many different ways and from many different sources. I believe it would be very desirable for the one who contemplates taking charge of pharmacy, to make a study of drug stores, the manner in which stores are conducted, the manner in which prescriptions are filled, etc. I should say he might get this experience largely as an observer. It would not be necessary for him to spend very much time as an apprentice in the store. It might be well for him to spend, let us say, two or three months as apprentice. The teacher of pharmacy, for example, should visit manufacturing institutions; should get employment, perhaps, for a time in some wholesale manufacturing concern. This would indeed give him very valuable experience. In addition to that, every teacher should be engaged in what is commonly designated as research work. The teacher who has no higher aim than to meet his classes and teach them the routine demanded by the college curriculum is not a satisfactory teacher. He should have sufficient enthusiasm and interest in his work to engage in special laboratory work, or something that stands for research work. That comes under the head of experience. Lastly, and probably most important of all, a teacher should have enthusiasm enough in his work to build up his department. Not merely teach the routine, not merely engage in research work, but *build up his department.* It should be his ambition to make his department the equal or the superior of any of its kind in any other college. He should keep fully abreast with the highest and best advance work in his special line.

I have said that it was not possible for a teacher, whether in a college or university, to enjoy the comforts of life or to provide for his family. This is only too true. The salaries paid are not sufficient. Let us hope that the time will soon come when competent instructors will be paid salaries high enough so that they may without reservation devote their whole time to the work. As it is, the best men are sooner or later compelled to abandon teaching for callings which will net them the absolutely necessary living income.

I believe this sums up what I had in mind as to what constitutes qualifications to teach in a college of pharmacy. It is true that we have instructors in some of our colleges of pharmacy who do not have these qualifications of inheritance, of education, and of temperament who are, nevertheless, eminently successful as teachers. As you know, it is the exceptions which prove the rules.

BUSINESS BUILDING.

Business building is a methodical operation. Put yourself in the customer's place sometimes. Go out, come into the store as if you were a customer and look around. How does the store look? Does it impress you favorably? Are things clean and bright? Is there a gang of loafers at the cigar counter swapping stories and keeping the ladies away? Ask yourself a few questions such as these. Many of us have opportunities that we cannot see. It is not enough to have opportunities. We must be able to see them; and, furthermore, it is well to be able to make them.—W. S. Adkins in *The National Druggist.*

Section on Practical Pharmacy and Dispensing

Papers Presented at the Sixty-First Annual Convention

METHOD OF HANDLING STRONGER AMMONIA WATER.

WM. R. WHITE, PH. C., NASHVILLE, TENN.

Perhaps there is no more difficult or aggravating task that the pharmacist comes in contact with than the handling of stronger ammonia water as it is ordinarily done in the drug store, by pouring it from one container into another. On account of the irritating and volatile properties of its gas the difficulty in handling it becomes a very grave proposition when it becomes necessary to transfer to small containers the contents of a tank which usually contains about 800 pounds.

Aside from the physical difficulty encountered in coming in contact with the fumes, the loss of strength incurred is a very important factor to consider. In order to obviate these difficulties as much as possible, the following method has been adopted, which is based on the principle of a syphon started by compressed air.

An iron compression tank with intake and outlet tubes, each having a stop-cock, is filled with air from an air pump operated by hand or by motor power until a pressure of about 20 pounds is obtained. Below the stop-cock on the outlet tube, fitted on with a union couple is a T joint, one end of which is closed by a stop-cock, the other end is threaded about ¼" and is screwed into a threaded hole in the iron bung of the ammonia tank. This tube should not be flush with the inside of the bung, as the contact of it with the ammonia will color the ammonia. Another hole, unthreaded, is bored in the bung, and through it a glass tube is passed to the bottom of the ammonia tank, the top end of which is bent at a right angle, and connected with a rubber tube in which is fastened a pinch-cock. A mixture of hot rosin and wax is poured into the bung to make connections air-tight. In order to draw the ammonia, the outlet cock of the air reservoir is opened and the cock at the end of T joint is closed, the air enters the ammonia tank, with pressure, and causes the liquid to flow through the glass tube from the bottom through the rubber tube into container, when pinch-cock is released. The flow can be shut off by fastening down the pinch-cock. When all is drawn that is needed the cock on outlet tube of the compression tank is closed and the cock on T joint is opened, liberating the air in the ammonia tank, thus releasing pressure on syphon tube. Only a pound or two of pressure will be needed to draw ammonia from a full tank, but it will require about twenty pounds to empty it when low. By getting these holes bored in bungs of different

sizes, and keeping these on hand, tanks with various size bungs can be emptied when received. By this method the drawing of the ammonia is under complete control of the operator, with no risk of suffocation or loss of strength of ammonia gas.

This method is especially applicable to wholesale handlers of stronger ammonia water, but the same principle can be used when it is purchased on carboys, and a bicycle pump can be used to give pressure instead of having a reservoir of compressed air.

As this is a question that confronts every handler of ammonia water, the writer would like to hear this subject discussed by other members of this Association.

DISCUSSION.

Mr. F. W. Nitardy, of Denver, said he would like to state the way he handled ammonia water. He used a rubber tube as a siphon. In order to start the siphon, it was first filled with water, one end inserted in the carboy and the water in the siphon was drawn off into a graduate. He had never experienced any trouble in this. The method was very simple, and did not require anything but a piece of rubber tubing.

A NEW AND SATISFACTORY FORMULA FOR LIQUOR ANTISEPTICUS.

CHARLES H. LA WALL, PH. M., PHILADELPHIA.

The pharmacopœial formula for Liquor Antisepticus has been frequently criticized and justly so, for being a harsh and unpleasant preparation. Solutions of this type should be pleasant and fragrant, as they form valuable adjuncts to the toilet. A formula which is the result of numerous experiments made by a generous user of such preparations and which has been modified from time to time to correct slight deficiencies, is herewith presented as being satisfactory to a larger number of persons than any other similar solution with which the author has had any experience:

Eucalyptol	5.0 Cc.
Methyl salicylate	1.2 Cc.
Oil thyme, white	0.3 Cc.
Thymol	1.0 Gm.
Menthol	1.0 Gm.
Sodium salicylate	1.2 Gm.
Sodium benzoate	6.0 Gm.
Boric acid	25.0 Gm.
Fluidextract golden seal	2.0 Cc.
Alcohol	300.0 Cc.
Water q. s. to make	1000.0 Cc.

Make the solution according to the art of the pharmacist, reserving 60 cc. of the alcohol to add to the clear filtrate.

Kieselguhr or talc may be used as a filtering medium.

A NEW AND SATISFACTORY FORMULA FOR LIQUOR ANTISEPTICUS ALKALINUS.

CHARLES H. LA WALL, PH. M., PHILADELPHIA.

The National Formulary preparation bearing this title is unnecessarily high in solids and in alkalinity. The following formula is offered as one which has been well tested and meets all the requirements of such a solution:

Sodium bicarbonate	5.0 Gm.
Sodium benzoate	10.0 Gm.
Sodium salicylate	10.0 Gm.
Sodium borate	30.0 Gm.
Thymol	0.2 Gm.
Menthol	0.2 Gm.
Eucalyptol	0.2 Cc.
Methyl salicylate	0.2 Cc.
Alcohol	40.0 Cc.
Glycerin	150.0 Cc.
Water q. s. to make	1000.0 Cc.

This solution shauld be made according to the art of the apothecary and if it is desired to color the solution red, as is frequently done, cudbear may be used for this purpose; or if it is desired to employ a more resistant color, one which will not bleach out so quickly when the colored solution is dispensed with hydrogen dioxide solution, the color known as vegetable red, used by confectioners and bakers, which is a sulphonated orcin, may be used.

SUPPLYING THE PHYSICIAN.

The typical M. D. seems to think that every purchase he makes from a supply house saves him just that much money. He regards the druggist as a middle man for whose existence there is no excuse as far as he is concerned. He forgets that the supply house is itself a middle man source of supply, that it is rarely an original manufacturer of high-class specialties. He forgets, too, that there is a limit of price below which certain goods cannot be sold. Supply houses cannot keep underpricing one another and the druggist indefinitely without ultimately reaching the bottom. If he were to investigate he would find that supply house qualities are just about on a level with supply house prices. But it is a condition, not a theory, that confronts the druggist. The physicians do buy from the supply houses, and they will continue to do so unless they are sold by some one else. If you want to sell them, instead of sitting back and complaining or wishing, you will have to take off your coat and go after the business as those competing houses do.—*The Spatula.*

Section on Commercial Interests

Papers Presented at the Sixty-First Annual Convention

"THE ART OF MAKING A SALE."*

ADDRESS OF BEN R. VARDAMAN, DES MOINES, IA.

Gentlemen, I realize it means a great deal for you to be here, at the cost of considerable time and money, that you may come and mingle for a week with your fellow businessmen, and "absorb ideas from one another," as one gentleman has said. I often think when I see men in a convention of this kind that, after all, it is the ideas that we take home that are the all important factors. As I look into your faces, I realize that there is not a man here who is not sitting beside a man that knows just a little more about some particular phase of his business than he himself knows. You cannot be here without taking some ideas home and applying them in your business.

The subject assigned to me this evening is a broad one, "The Art of Making a Sale." We are all engaged in business for the purpose of making sales. And yet, as you well realize, if you have given the thing any thought, the art of making a sale is possibly the subject that is given the least attention in your business. While this is naturally true while you are gathered here in your annual convention, I maintain that it is thoroughly true in your business. I know it is true in the business of the average business man today, strange as it may seem. His business depends on his making sales, and yet it is not given a great deal of thought, as a rule, in his business.

We sometimes become confused in our terms. For instance, I have experimented a great deal, and have asked men to give me a definition of the term "business." It is pretty hard for the average man to do that—to give a concrete definition of the term "business"—"commerce." If I should ask you to do that to-night, the general concensus of opinion would be that "my particular business is just a sort of routine grind." The merchant says, "It means going to work at 7 o'clock in the morning, opening the door, and serving the public all day long." The banker says, "It means going to my bank and serving the public and handling money all day long." Yet, when we think of the term "commerce," how few of us think of ourselves as important elements? We think of the great steamship and railroad systems—the great movement of traffic in the country. We eliminate ourselves. So to-night, in discussing the broad subject of the art of making a sale, I want to eliminate everything else from it, and talk to you for just a little while about the personal element—yourself, and those associated with you, in the act of making sales in your business.

I am going to be brief to-night, because I know you are uncomfortable here in

*Printed from the stenographer's report.

this room, and I am not going to say as many things in the way of general introduction as I might say under other circumstances. I want to try to help you in your own particular line of business. Yet I do not know that I am going to say very much about the drug business. You have that three hundred and sixty-five days in the year. I want to talk to you about the great fundamental principles that lie underneath and about your business. We realize that the business world to-day rests upon the primary wants of humanity. Our whole commercial system rests upon the primary wants of the people. The gathering of sustenance, of food and raiment, is after all, the great problem of modern commerce. Your problem is to learn how to supply that demand, and see that the world gets what it wants.

I am going to talk to you about the art and science of salesmanship. I have heard you gentlemen speak about the Scientific Department of your Association. I have heard some exceedingly interesting papers read here this afternoon on various scientific subjects; and to-night I am speaking to an audience of men not afraid to turn to science. Sometimes I talk to audiences that do not thoroughly appreciate the term "science," because they have not had it drilled into them as you gentlemen have in your particular line of business. I wonder how many of you that have thought of the scientific department of your business realize that the term "scientific department" should cover the selling end of your business, just as it does any other part or phase of your business. A great many say it is impossible to apply it in the selling end of their business. But it is, however, possible to apply it to salesmanship.

Sometime ago I was talking to a retail hardware merchant, and he said, "There is something wrong about my business, and I want you to go through it and see what it is." I spent three hours doing that, and, in examining his stock, I asked him many questions. I said to him at the end, "You have no science in your business; that is all that is the matter with you." He says, "I can't understand your term. I have heard so much about it. It is impossible for me to see how you can apply that term in the hardware business." He said he had a boy in the high school who had been studying science for two years, and he didn't know enough to fly a kite. I said, "He is perhaps trying to fly it with incomplete and piecemeal knowledge." Then I gave him Herbert Spencer's definition of science: "Science is nothing more nor less than thoroughly organized and classified knowledge." To-night, I am sure you gentlemen cannot think of a thing more valuable in your business than thoroughly organized knowledge of your business.

Another illustration: There are several colleges in this city, and some man is designated as Professor of Mathematics in these colleges. That means that he has studied the organized knowledge and science of the subject of mathematics, until he is able to go to the blackboard with a piece of chalk and demonstrate a very complicated problem, so that you can readily grasp and understand it. He is a mathematician, we say, because he understands the great science of mathematics.

To give another illustration: You gentlemen in your business come in contact sometimes with a young man who wants to become a doctor. The law says to him, "You must first attend a medical school and make a study of the organized

science and practice of medicine. You must go into the dissecting-room and take the human system and tear it to pieces, and carefully study it, and analyze every bone and muscle and tendon and artery, and every tissue in the system." After he has gone through this course of study, and passes his examinations, he is granted a certificate, and is given authority to practice medicine. You call in that man when you are sick, and he looks at your tongue, feels your pulse, and asks you a few questions. He has studied the organized knowledge of that subject, the science of it, just as you gentlemen have studied the science of pharmacy. But how far have you studied the science of salesmanship, of business, the thing on which your business depends? It is just as important to have knowledge on the selling end of your business as it is on the chemicals that you supply. The only trouble is, that you have not had your attention drawn to the requirement of knowledge of that kind.

I was going down the street one day and met a real estate salesman, and I said to him, "How did you happen to sell that house and lot on the corner down there?" His reply was, "I hardly know what you mean. A man came into the office and said he wanted to buy a house, and I told him about the size of this house and its location, and said to him, 'That is the house you want,' and he went over there and looked it over, and the price and everything suited him, and he came back and paid for the property, and the deed was made out to him. It was all very simple." I said to him: "But I want you to tell me how to reach the heart-strings of the people that I come in contact with, so that I can create in them the desire for the property that I have for sale. If you cannot do that, you do not thoroughly understand the great science and art of selling real estate."

I was sitting in the office of the president of a large insurance company once, and a man came in and said, "I have made up my mind to take that policy of $5,000 we have been talking about." I said to him, "How did you do that? It looks like an easy way to make money." He reached into a desk and pulled out a blank and said, "There is the best policy of insurance that is written in the world, and all any one has to do is to find a man that wants insurance, and he takes that policy." I said, "But I am afraid I would starve to death finding people that want insurance. I want to know how to touch the heart-strings of people, to create the desire to take out insurance. If you can't tell me how to do that, you don't understand the great art and science of selling life insurance."

Again, I go into a clothing store across the street and say to the clerk, "Show me how to sell a suit. Show me how it is you lay hold of people and create a desire for the goods you have to sell." And sometimes I wonder if in your own particular business, where you have seen your clerk make a mistake, you have ever called him to the back end of your store, and explained to him what he should have done to appeal to the customer.

There is an art and science in the sale of goods. We fail, sometimes, to go to the bottom of these things. But we have reached that point in our business development—and it is obvious more and more every day—where it is up to the retail merchant to study the organized knowledge of his business, or he is going to have a harder time to exist than he has ever had. A great many merchants to-day are having a hard time to exist. Up to the first of July, over five thousand had gone out of business. And I notice the reports of the rating agencies say

that the great reason for this was incompetency in business. Incompetency! I want to say to you gentlemen that that is a horrible indictment against the methods, the policy of to-day, in the retail world. Incompetency is nothing more nor less than a lack of organized knowledge of the particular business. There is a science and a great art in your business.

I find a great many people who do not appreciate this fact, but who are trying to exist in their business by the "tricks of the trade." Sometime ago, in the city of Detroit, I was talking on this same subject before a great convention. Several hundred men, gathered from all over the country, were assembled there, and I saw a great streamer placed across the lobby of the Cadillac Hotel. The pennant said that I was going to show some of the tricks of selling. I went to the secretary and asked him to take it down. I said, "I am not going to talk about 'tricks,' and I don't want a single man to think that I am going to talk about 'the tricks of the trade.'" I hope there is not a man in all this great convention that is existing in his business because of low-down tricks. I would rather see him exist because of the application of great principles in his business. But sometimes, in some lines of business, I find men resorting to tricks.

A little while ago I was in a shoe store and was talking with the merchant. He carried a stock of $90,000. I saw that man perform a trick, and make a sale. A woman came into the store, leading a little boy. The boy wanted a pair of hunting-boots. Now, you know there is no such thing as hunting-boots coming from the factories of the country, made for little boys. The little fellow had seen his father wearing hunting-boots, and he wanted a pair, a pair of high-topped boots, water-proof, with viscolized soles, and all that. The merchant knew there was no such thing. The tired mother said she had been to every store in the city, and couldn't find any hunting-boots for the boy. He said to the little boy, "Why, certainly, I can find you a pair, little man." Then he went back to the rear of the store to get a boot that he knew was not there. He brought out the nearest thing to it that the manufacturers made, which was a man's size No. 7 boot. He told the little boy to try them on and he did, but, of course, they were very much too large for him. Then he went back to the rear of the store to get a smaller boot, and put a pair of big felt insoles into it, and brought it back, and still it was too large. The third time he went back to the rear of the store, and put into that boot another heavy felt insole, and had the little boy try that. He stamped his foot and said, "There, Mister, that is all right! That fits me." Then he slipped three soles in the other boot, and let that little boy put those men's boots on, and go stalking up the street with them. After the lady had gone, and he had turned and dropped $7 into the till, he turned to me and said, "You have got to get the money some way." That poor man believed that he had to get the money "by hook or crook." But I tell you that that man performed a trick when he made that sale, and he made it because he was a moral coward. He didn't know enough about the art and science of his business to sell that little fellow the kind of boot he ought to wear. I was in the store three weeks afterwards, and I asked him if the lady had come back, and he said, "Yes, she came back." He knew when that boy went home with those great, big, heavy boots, that she would come again when she found she

had been wronged; and she brought the boots back, and he lost a customer. He thought he was doing business by that "trick."

Now, some of you are saying: "What is the difference between the science and the trick?" The trick always deceives your customer's mind. By science, you lead and persuade the mind.

I might illustrate this by two common little examples, things that you see every day. Possibly it is done in your own work, I don't know—and maybe you don't know. Possibly you have stepped into a store, and said to the clerk, an unsophisticated young fellow, that has probably not been there very long, "I want 10 cents worth of chocolate creams." The clerk fills the sack and puts it on the scale. Then he stands there and takes out one cream after another and puts them back in the case, and you see that going on until you become convinced that that clerk is a miserable thief, and is taking your chocolates. You will never buy another thing at that store. Then you remember, on your way home, that your wife told you to bring a dollar's worth of sugar home. So you go into old "Uncle Billy" Skinner's and say, "I want a dollar's worth of sugar." Uncle Billy goes behind the counter, and puts a lot of sugar in a bag and puts it on the scales, and he hasn't got enough; then he begins to dip up sugar and put it in the bag, and goes after more sugar, and yet more sugar, until after a while, you begin to wonder if he is going to compel you to carry that whole barrel of sugar home for a dollar. You take it home, and you put it on your scales, and you discover it is a pound short in weight. But no human power could make you say that "Uncle Billy" was a robber, because he had touched a chord that responded just exactly the way he wanted it to respond, while the clerk had touched that same chord, but he had touched it at the other end. One touched it in a positive way and the other in a negative way.

When you have analyzed and come to a thorough understanding of these two little examples, you will have solved the great art and science of salesmanship. It is a simple problem. It is not a vague and mysterious thing. There are only three very common elements in it. But let me impress one thought here:

You gentlemen are here to consider the making of sales. Do not think that there is no connection between the goods you have on your counters and shelves to sell and this idea. The art of making a sale is a great mental problem. I step into a store and say to a salesman, "How many sales have you made to-day?" Nine times out of ten he will pull out his cash register and begin to count his tickets; or perhaps reach for his sales book and say, "Here are the sales I have made to-day." Or maybe he will begin to count the money in the till. I say, "Oh, no, I want to know something about the sales you have made. These things are not the sales. You don't make sales in the cash-drawer, or in the sales-book, or the cash-register, or anything of that kind. They are only the record of your sales."

You make your sales in the minds of your customers. Get that thought and take it home with you, and drive it home to your clerk that when he is making a sale he is dealing with a mental problem. You have never made a sale but that your customer's mind has passed through a certain series or stages of evolutions. I might name quite a number of these stages. For instance, you cannot possibly make a sale without leading a man from what we call the first stage,

that of introduction, to the stage of attention, the stage of interest, the stage of desire, the stage of resolve. You cannot possibly make a sale where your customer's mind does not go through these stages. Sometimes it is done very rapidly, and sometimes it may take a week, or years, to lead a man from one stage to another. Just make a study of the things that go to make up a sale, and see if you cannot detect in your customer's face the workings of his mind.

I want to say to you that there are just three prime elements in the accomplishment of that feat, and they are: First, yourself; second, the thing you have for sale, and third, the other person. That is all there is to it—a very simple problem. Yet no man has studied that problem thoroughly enough to go to the bottom of it. As I look in your faces I know I have before me the most important part of these elements—yourselves; your own individual personality. And yet I say, without the slightest hesitancy, that although this is the principal phase of your business, it is the part you have given the least thought to.

It has been my privilege, during the last fifteen years, to come in contact with practically every leading educational institution in this country, and I have studied their young men. I have made a practical study of the young men in the universities of the country, and I have asked them what they were being taught, regarding their own individuality—themselves, their magnetism, their own personality; and, without one single exception, they have replied that they were not being taught these things in these institutions. I have asked that question everywhere, and have gotten the same answer. I have asked what their parents and guardians were doing regarding the development of their personality, their own individual personal magnetism, and out of a splendid list of a thousand names just three have told me that they had received such instruction. And so I do not hesitate to say that the most important element of all in business, that of individual personality, is the subject that is being given the least thought in our education of to-day.

If I were to advise a young man going out into business to-day, I could not do better than to give the advice given to a class of graduates in a law school by an old, white-haired judge who had taught them. The old man, feeble and infirm, said to them, "Young men, as you go out now into your chosen profession, I want to suggest that when you have found a place that suits you, you should tack your shingle on your office, and look at it from up the street and down the street, and across the street, and find out how it looks to other people." In other words, the first thing for the young man to do, in embarking on his chosen profession, is to learn how he looks in the eyes of the community; how he looks in the eyes of the people upon whom he must depend for his livelihood. And I believe it will be a good thing, when you gentlemen go home, for you to go behind your counters and ask yourselves honestly, "How do I look in the eyes of my community?" Then address yourselves to your clerks and salespeople, and get them to ask, "How do we look to the people about us?" Personality! It is a power, and you know how it radiates. The personality I refer to is not so much the personality we see as that we feel. As I look into your faces to-night, the thing that impresses me the most is not your size or splendid proportions, but that something that comes from inside of your head. I am not going

to talk about the subject of the power of mind over matter—nothing of the kind. But, after all, it is the things that you are thinking that impress people first of all.

If I had the time, I would experiment a little to-night. I would ask some of you business men, and three or four of you who could smile, to come and sit here and smile at this audience while I am talking. You could see the effect and how it would lift you up. Then I would ask them to hold that smile while they thought of the meanest thing they could possibly think of. Not one of them could do it. If you think you can do it, just try it before your mirror, in the privacy of your own room. You will find that just the moment you permit your mind to change from the pleasant thought that induced that smile, and begin to think of low, mean things, that smile will fade. I don't mean a grin. I mean a smile that comes from the very soul of a man; the thing that everybody likes; the thing that you are going to give your customer, when you try to lead and persuade and control that man; the thing you should inspire in your clerks.

As soon as you go home from this convention, try this thing of smiling when you meet your customers, your home people, and just try to see how good you can make them feel, and see how easy it is to sell them, and to bring back trade.

I stopped into a lawyer's office in Detroit, once, and he was out, and I sat down to wait for him. Over his desk was that old motto that reads, "Smile; damn you, Smile!" I wondered why he had that sign up there, and when he came in I asked him, and he said, "Simply to make people smile." He said, "A man comes into the office, and he feels that he is being persecuted. He sits down at the desk and he sees that sign, and he begins to smile, and I know he is being lifted up; then I can help him."

But I must hurry along.

There is another invaluable quality in personality especially, that the salesman loses sight of, and that is memory. Somebody will say, "Can people see my memory?" No, but they can feel it. Several years ago I was in Chicago, and I needed some shirts, some tailor-made shirts, and coming down Dearborn street I saw a little sign that read, "Cobb makes shirts." I said, "If Cobb makes shirts, we ought to get together, because I need shirts." I went in and gave the order, and a little man came from behind the counter, a dapper little gentleman, and he put out his hand and said, "My name is Cobb; I am glad to meet you." Two years later I was in Chicago again, and it occurred to me that I needed some more shirts, and I naturally went back to Cobb. Cobb came in, and reached out his hand, with a big smile on his face, and said, "Why, Mr. Vardaman, how do you do? I am glad to see you." I held his hand and said, "I want you to tell me how you did that." He said it was a part of his business. Yet, it was a magnetic part of his business. I liked that—liked to be remembered; and so do you, and so does everybody. How he reached out there and picked my face out of all the thousands he had seen pass his store in that time, and stuck my name to it, was a marvelous thing to me.

You say you cannot do that. Yes, you have your own memory just as great and powerful as Cobb's was; the only trouble is, that you haven't developed it along that line. You know where all the thousands of articles in your store are; you have that memory, because you have developed that side of it. You can develop your memory just as readily as you can develop the muscles of your

arm; and if you do it, the people about you will pay for it. When people come into your store, and you are able to call them—men, women and children—by their names, and call to mind some little incident that occurred three or four years ago; that is going to draw them to you. It is invaluable, this quality of personal magnetism. There is not a man in this audience to-night, under the age of thirty-five, who cannot broaden his shoulders half an inch, or increase his height half an inch, by applying some of the scientific principles we have been talking about here to-night.

And you men of maturer years, I want to ask you what you have been doing with your clerks, or your salesmen, by way of training them to see things in their business—teaching them to use their eyes. We sometimes think that our eyes are placed in our heads to view the beauties of nature; but I want to tell you that the man who can use his eyes in the right way can bring beads of perspiration onto the brow of the attorney who tries to confuse him on the witness stand. When you have learned how to use your eyes, you can make a sale all right.

An old lawyer said to me once, "I have been practicing at the bar for forty-two years. I would give almost my right arm if I knew how to shake hands with people. Whenever I wish to shake hands with the jury and thank them for their services, I feel my weakness." The politicians know how to do that, as we all know.

But I might continue here for an hour on the subject of your personality. I simply want to say that if you and your salesman will take up some line of that sort and develop it to the fullest degree, the world about you will pay you handsomely in "the coin of the realm."

Now, the second great element in the art of selling is to know what you have to sell. I am only going to touch on that to-night. We all know that the salesman should be an expert adviser in his business, and he cannot be an expert adviser unless he knows the thing he is advising the customer about.

Out in Denver a few days ago I stepped into a store—a drug store—I don't know whether the proprietor is here or not—and I saw a clerk trying to sell a customer a pair of military brushes. The clerk pulled out the drawer and picked up two or three brushes and the customer picked up one particular brush, and was looking at it; he was in a hurry, and he wanted some brushes quickly. He remarked that he had come from home without his brushes, and he had to buy some: and he said to the clerk: "Is this a genuine ebony brush, or is it just a pine board painted black?" The clerk said, "I really don't know, but I imagine it is ebony, from the price." That man went out without buying. These things are happening every day. How long would it have taken that clerk to learn whether that brush was ebony or a pine board painted black? That proprietor could have taken that boy into the back of the store, and, in thirty minutes, have taught him all about his brushes.

I have a shaving brush that I gave 25 cents for. A few days ago I stepped into a store with the idea of buying a "rubber-set" brush, and I asked the clerk what a rubber-set brush was, and he said it was just some way of sticking the bristles in. I asked him what was the difference between a 25-cent brush that

he showed me and a rubber-set brush. His reply was, "I don't know that there is much difference." I said, "I will take the 25-cent brush."

Now, here is a watch (exhibiting same) that I bought several years ago, and paid $40 for, because the man who sold it to me knew watches. I have always been proud of that watch. And here is the point!—sometimes people say, "Yes, it is a pretty smooth game to sell your customer." But when you know the goods, you can lead your customer to appreciate them before he buys. And I want to say to you that I have carried this watch all these years, because I think so much of it. He put one of those jeweler's magnifying glasses over one of my eyes, and he told me to shut the other eye and look into that watch, while he called my attention to its small spring, and he said, "That one spring in there is worth $7,500,000 a ton. Then he said, "Those little red objects that you see are ruby jewels." That sounded rich, and I looked with interest. He showed me the whole interior of the watch. Everything else was obscured from me, except what he wanted me to see in it. And all the while he was pouring into my ears just what he wanted me to hear. I was dead to the world, for the time being. I bought the watch. I was afraid he was going to take it away from me. That sale came from the knowledge of how to sell goods.

One time I stepped into a store where a man was trying to sell oranges. He said, "I have bought this pile of oranges, I have tried to sell them, and I can't do it." He was advertising big California oranges at 29 cents a dozen. I said to the man, "Do you really want to sell these oranges?" He said, "I certainly do," and he told me how many cases he had. I said, "This is a big California orange, and nearly everybody knows that, and you are advertising that." They were really large, fine oranges. I asked him what kind of oranges people liked, and he said they liked big oranges. I said, "Do they like juicy oranges? Do they like sweet oranges? Can't you just advertise juicy, sweet oranges? Just say that in your advertisement, and see if the people don't begin to flock in here." He told me afterwards he hadn't lost a single case of oranges; he had sold them all out, by knowing his goods. A man cannot be an expert adviser and not know his goods.

The third great prime element in making sales is to know the people about you. Take the people in your town, and you will discover that the most successful business men, as a rule, are those who know most about sizing up people—who know most about human nature; just the commonplace things about the people we are having to deal with every day. When we have learned what is in the lives of people, it is easy to appeal to them.

But we sometimes have a very erroneous idea of this thing we call human nature: very often the nature of people about us is largely what we make it. That is hard to believe, but there is a great deal of truth in it. Say, for instance, that I come into your town, and decide to buy and made my home there. I go down the street and meet you, and say to you, "I am considering buying this house over here, and I would like to know about the man next door." You say, "To be real honest with you, that man is not the sort of man I would like to be next-door neighbor to." I thank you, and go on farther down the street and meet another citizen, and he says, "I have known that man for twenty-five years,

and I think as much of him as any man in this town." What is the difference? It is largely in what the different individuals have attributed to that man.

I wish I had more time to elaborate upon twenty-five or thirty characteristics of human nature to-night. But I have not the time, and you have not the time to listen to me. I will cut it down to three or four fundamental elements of human nature that the salesman should serve.

The first is, that you cannot drive a man. I mean that you can't argue a man into a thing, but you can lead him. These are universal characteristics, because we find them among people everywhere.

Another is this: People are lazy; and if you are wise, you will cater to that laziness. What I mean is, that people naturally have a desire to go against as little resistance as possible. They move along the lines of least resistance. Yesterday, in coming through Chicago, I went up State street, and stood where I could study the architecture of the great entrance to the Marshall Field store.

That is a wonderful piece of architecture; it is noted the world over. And in studying that, and allowing my eyes to follow the great pillars down from top to bottom, I wondered if the architect had not made a mistake when he placed these pillars there, and forgot to put the threshold in. I felt like going to the manager of that great store and saying to him that the architect had made a mistake in failing to put the threshold there. But had I done so, he would have replied that it had been left out by express direction; that they had told the architect to make it just as easy as possible for people to enter the store—in fact, so easy that they would just fall in. They recognize this principle of human nature.

One time I was in Rochester, Minnesota, and wanted a little 10-cent bottle of perfume, and I went into a drug store to get it. The clerk stood in the back of the store. I walked in 10 or 15 feet and stopped, but he didn't notice me; he was reading the base-ball news or a scandal or something. I stood there for possibly thirty seconds, and then started for the door. He then asked, "Is there something you want?" I said, "No, thank you," and went on out. Down the street a few doors I went into another drug store, where a bright, snappy fellow came up. He knew I wanted something, and he asked, "What can I do for you?" I was about a minute buying that bottle of perfume and paying for it. If I was there to-night I would go in and buy another bottle of perfume, just to see the enthusiasm of that salesman. He made it easy to buy that bottle of perfume, while the other fellow made it so hard I couldn't do business with him. Make it as easy as possible for people to do business with you. People will pay you for it. It is no small part of making a sale.

Another thing for you to remember is, that people are proud and selfish. Every mortal likes "taffy," if you will give it to him the right way. I know a lady who has charge of the family affairs and purchases, because the husband is too busy to give his attention to them. She has some boys, and the salesman where she buys their clothes knows her pride in them. She walks into the store with one of these boys and says to her favorite clerk, "I guess George will have to have a new suit." So he leads George back, selects a coat and slips it on him, leads him over by the mirror, adjusts it so that he can see both front and back, then casually walks over to the mother, turns around and says, "I want to tell you, Mrs.

Blank, there is a son for any mother to be proud of." She is pleased, and she pays the price, just to hear the clerk say these things.

I know an old German merchant in a little town in Iowa who has built up a wonderful business by knowing how to play on some of these characteristics of human nature. He has a stick of candy for every child that comes into the store, and he makes it a point to personally see that each child gets a stick of candy; and it matters not how untidy or unkempt a baby may be, he never permits a mother to come into the store that he does not take up that baby and fondle it, and tell the mother, "How much it looks like papa!" They come to him for fifteen or twenty miles just to hear these little compliments. People like it. Give it to them, and see how easy it is to make sales.

The last point I want to make on this subject of human nature is, that normal men and women are subject to that great thing we call "suggestion." I am not talking about hypnotism, but I want to touch on the fundamental principle of hypnotism. Over here in New York City is a doctor who has given up the practice of medicine, because he has developed that quality to such a marked degree that he can use it for surgical operations where the patient has weak heart action and cannot take an anæsthetic. He tells him that it won't hurt him to undergo the operation, and he tells it to him so emphatically that the man can undergo the operation without serious pain.

I sometimes tell a joke on my wife that illustrates this idea of suggestion. We were coming down the street one cold afternoon, and she was breaking-in a pair of new shoes, with heavy, stiff soles, and her feet got cold. I wanted a particular magazine, and I suggested that we go into a drug store on the corner, and she could warm her feet by the register while I was picking out of the rack the magazine I wanted. She agreed, and we went in, she stood over the register until I finally got through. Then I asked her if she was ready to go, and she said, "Yes," and we started. About that time a clerk came up and said, "I am awfully sorry, lady, but that old furnace of ours has been out of order, and we have not been able to have any heat in it." There was something in the power of suggestion that warmed her feet.

Another time, away out in western Missouri, on a cold, blustery day, twenty-four people besides myself were in a little hot, stuffy station, waiting for a train. Somebody asked when the train was due, and the agent said in about thirty minutes. I thought I would try a little suggestion on the crowd, and accordingly I suddenly reached for my watch, looked at it, snapped it shut, grabbed my grip and hurried out of the station. Every man in that station did the same thing. They thought somebody had said the train was coming around the bend. I pulled up my overcoat collar and went to walking up and down the platform, and they went back feeling sold.

Now, I said I was going to talk to you, in the main, in terms that we could all understand, that I was not going to talk on the art and science of salesmanship in technical terms. But I want to say that, fundamentally, suggestion is possible simply because every normal individual has two mental functions grinding away in his mind all the time. Great and wise scientists tell us that is not true; but, nevertheless, there are certain actions or phases of the mind we are unable to account for on any other hypothesis, except that we have two mental

functions. We call one of these our objective mind, and the other part we call the subjective mind—because it is subject to our objective mind, and that of others, too. I have never found a better illustration of these two qualities than was given me one time in early life by my old father. One rainy day on the farm we were in the barn, and I noticed a stray cat come in, a poor, scrawny, miserable, bobtailed cat; and I asked my father why a bob-tailed cat was always poor. He said there was a good reason for it; that if I would watch a cat creep up on a mouse, I would see that the mouse watched the cat's tail as it lashed back and forth, and the closer the cat got to the mouse, the more furiously the tail lashed; and the mouse watched the cat's tail so closely that it failed to notice the nearer approach of the cat's mouth and claws, until it was too late for him to escape. Of course, he said, a bob-tailed cat was "handicapped." He had no way of taking advantage of the subjective mind of the mouse. And so the salesman must know how to get behind the subjective mind of the customer.

But how are we going to apply these great fundamental principles we have been talking about here. Suppose you are a grocer, and it is along late in the spring, about the time that apples are ready to spoil and become covered with little black specks; and Mrs. Jones comes into the store, and sees a basket of these apples, and says, "Mr. Smith, are these apples the best you have?" What are you going to say? You know they are the best you have, and the best in the market at the time. There are a great many things you might say. But you have a mental problem to solve: it is a mental problem you have to deal with, pure and simple. People have to accept what you tell them, just so long as they haven't a logical reason for disbelieving. Mark that; it is worth a great deal. All right; what are you going to say to her? You may say, "Yes, these are the best I have." She may reply to that, "If they are, they are certainly mighty poor apples." You may say, "Yes, they are the best in the market at this time of the year." She might think it was a mighty poor time to buy apples. But reach down into the basket and pick up one of these apples, split it open, and show her how nice and juicy and white it is, and say to her, "They are the finest apples in the world for cooking." She has never cooked them, and she is compelled, by that great law of nature, to believe that thing. It is her subjective mind. Here is what happens in that mind. It goes back from your store over to her home, into the dining-room there, and sees the big cut-glass bowl there full of juicy apples. She will buy that basket of apples and take it home, and come back and tell you you told the truth. How long would it take you to argue that woman's objective mind into buying apples about to spoil? But you can lead her past that, through her subjective mind, and she will buy them.

Here is another illustration: A customer went into a gentleman's furnishing store to buy a night-shirt. The clerk was new and didn't understand the stock, but he placed a box on the counter and pulled out a shirt with a big red border around the front. The customer smiled and said, "I don't want anything like that; I just want a neat, plain garment." So the clerk turned to the proprietor and said, "What have we in the way of plain night-shirts?" The proprietor replied, "Nothing, they are all coming that way now." The customer was about to leave, when the clerk said, "wait a minute"; and he reached into the box and pulled out a night-shirt identically like the other, but this one he turned over on

the counter. He knew human nature. He knew that a man likes a big, full, roomy, generous garment, and he showed him how long it was, and how broad it was across the shoulders. Now, you will remember, that I said a while ago, if you know how to use your eyes, and make others use their eyes you can accomplish a great deal. He had that man with his eyes down close to that shirt, following a neatly pointed pencil to see the fine stitching of the garment. Finally the customer said, "I believe that is about the garment I am looking for," and he asked the price of it. The clerk said $1.50. Now, that shirt had that same red border, but the clerk had led him past that. How long would it have taken him to argue that man into the feeling that he wanted to buy a night-shirt with a big red border across the front? He couldn't drive him, but he could lead him past it.

I saw two Italian boys once crying: "Pineapples for sale at seven cents each, or three for a quarter." I thought it was a pity they didn't know how to count money. I sat and watched them make ten sales, and saw seven business men go up and buy pine-apples at three for a quarter, instead of paying seven cents apiece for them, and realized that the boys did know the value of money.

I saw a patent-medicine man one time—one of these fellows you are passing legislation against right along—use this principle on a farmer. He drove up to the farmer's house, and the farmer listened to his story: but he replied, "No, we don't want any more medicine; the whole cupboard is full, out in the kitchen now." Apparently the salesman didn't hear that. He just reached over and tapped this farmer on the knee, and said, "I want you to use one bottle of this, but don't quit using it after two or three days just because it makes you feel so much better!" The old man went down in his pocket for the dollar.

I laughed at a friend of mine some time ago. A druggist was advertising a certain famous medicine—the kind of medicine that, if you are sick, makes you feel so much better; and this man, a great, big, strong, robust fellow, was appealed to by that advertisement, and, with some embarrassment, he went into the drug store and said, "I see you advertise a medicine that makes a sick man feel better, and I wondered if it would make me feel better." That is part of the suggestion.

But sometimes we lose sight of another important factor in suggestion. Sometimes a young man will go into a store, and say, "I reckon you don't want to hire any more clerks in here, do you?" You don't hire him. But this is not half as laughable as to see a great big business man using that kind of negative suggestion in his business right along. I stepped into a big clothing store one day, and saw a man trying to buy a shirt. He said he wanted to buy a fine dress shirt. The proprietor showed him a shirt, and said the price was $4, and the customer was admiring it. Then the proprietor said to him, "Neighbor, there is one of the greatest pieces of junk I ever sold in my life." That customer immediately saw the old rag man coming down the alley, crying "Rags; old iron!"—that is "junk." He came out of there in a hurry. A few weeks later I saw a notice in the paper that that man's business was in the hands of a receiver. He didn't understand the art of making a sale.

I stepped into a furniture store one time, to buy a folding go-cart for the baby, and the clerk showed me a nice little cart, and persuaded me it was the cart I

wanted. But he wanted to say something more, and he wheeled it across the floor and said, "There is a little cart that has given us the *least trouble* of any we have ever handled." Trouble! I didn't want trouble, I wanted something to wheel the baby in. I expect he wonders to this day why I got out of there. I went down the street to another furniture store, and asked to see a go-cart—and I have always thought that cart was exactly like the one I saw in the first store. The clerk wheeled it up and down, and showed me its strong points, and finally gave it a shove across the floor, and said, "There is a great cart. That cart has given us the greatest satisfaction of any cart we have ever handled in this store." Satisfaction! That is it—satisfaction. I bought that cart, and I have it yet.

Over in Ohio, a gentleman in a jobbing business of some sort told me about this power of suggestion. He said that on every box they shipped out was a tag stating that the article in it was fully guaranteed, and telling the customer if he didn't find it absolutely all right in every respect they would take it back. He said they had 85 percent of such articles brought back—a kick of some kind. A little, scrawny, insignificant man, he said, came in one day, and was nosing around among the boxes, and he said, "What have you got that tag on there for?" He replied, "To make our customers feel better." The little man said, "Take it off." They took them off, and found out that less than 5 percent of the packages they sent out brought back a complaint.

I want to leave this thought with you, that in the art of making a sale you can cause people to see the things you want them to see. I don't want to you to understand that you should have any salesman to tell anything but the truth. You cannot build up a permanent business in that way. But the man who properly understands his own nature, the nature of the people about him and the nature of the goods he has to sell, and knows how to apply that great fundamenal thing called "suggestion," can make people see the things he wants them to see.

A shoe merchant told me once, "You have given me a thought, and I am going to try it. I have been in business eighteen years, and I have been guaranteeing my goods, and customers have been coming back and complaining about the goods I sell them. I believe I can see why. All these years I have instructed my salesmen that they should impress upon the customer's mind that our shoes were absolutely guaranteed." I said, "Change that, and say something positive about the shoe—that it is "a splendid wearing shoe," or " a neat looking shoe," or, "You will find that an exceedingly comfortable shoe." A year or so later I saw that man again, and he said, "I want to tell you that little change in policy has worked wonders in my business. I very seldom receive a complaint, because people are not looking for things to complain of. They are looking for positive qualities." Apply that in your business.

As I leave this subject with you to-night, I want to lift you up, as I said before, clear out of your business, and make you appreciate the fact that you are dealing with fundamental principles. Do not think that the principles I have been talking about are not applicable to your business, so long as you are dealing with humanity.

A young man in Detroit killed an old woman, snatched her diamond ear rings from her and her rings from her fingers, slipped back across the river and

baffled the police and detectives. After a few weeks, this young man became bold, and said he knew something about that "murder mystery." He was arrested and placed in a cell; whereupon he sent for a public stenographer and dictated the minute details of the horrible crime. He had no money to employ counsel, and one of the great criminal attorneys of that city was appointed to defend him. When he was called upon to plead, in spite of his confession, his attorney arose and said to the court, "Our plea is not guilty." The case was tried before a jury, the young man all through the trial contending that he had killed the woman; the jury was charged, and in two hours there was a rap on the door and the jury was led in, and to the despair and disgust of the court and all the law-abiding citizens of that city, their verdict was, "We find the defendant not guilty." Why? Simply because that great attorney knew some laws that were greater than the laws of the State of Michigan. He knew some of the fundamental laws of human nature. He knew how to say to these men, "Percy didn't commit this crime." These men went out and returned, I believe, a conscientious verdict, because this man knew the power of that great element in human nature—suggestion. I cite this instance to show the extent to which study can develop this insight into human nature.

One time in Chicago a great evangelist was preaching to thousands. One morning a number of representatives of the Associated Press called on him, and interviewed him on his marvelous power over men. They expected him to button his coat up and say, "Gentlemen, that power is simply a manifestation of the great Divine power." But Gypsy Smith said nothing of the kind. He said, "The secret of my power over men is in knowing how to appeal to them. I have studied men. When I see a man in trouble in the audience, I know how to touch him, I know how to appeal to him." So I say to you, if you study the people about you,—as that great lawyer did, and as that great evangelist did,—you will experience a great revival in your business.

But I want to impress upon your minds that your whole problem in any sale is a mental problem. The three great fundamental elements in it are yourself, the goods you have for sale, the people about you; and don't forget that the one great single element is the *man* element.

Contributed and Selected

UNITED STATES PHARMACOPŒIA.

NINTH REVISION.

ABSTRACT OF PROPOSED CHANGES WITH NEW STANDARDS AND DESCRIPTIONS.

Copyright, 1914, by the Board of Trustees of the United States Pharmacopœial Convention.*
All Rights Reserved

PART III—FIRST PROOF.

A third installment of the Abstract of proposed new descriptions and standards and of changes in descriptions and standards is herewith submitted.

This Abstract embraces most of the Waters, Solutions, Spirits, Extracts, Fluidextracts, Resins, Tinctures and Miscellaneous Galenicals. Where no reference is made to rubrics, formulas, directions, tests or chemical assays, it is understood that the material facts remain the same as in the United States Pharmacopœia, Eighth Revision. In galenical preparations the requirements for alkaloidal content and the proximate assay methods are not included; these will be published later.

Other Abstracts will be submitted later. Comments should be sent to the Chairman of the Revision Committee, Joseph P. Remington, 1832 Pine Street, Philadelphia, before June 1, 1914.

WATERS.

Aquæ Aromaticæ.—General process added calling for 2 Cc. of Volatile Oil in 1000 Cc. of Aromatic Water and 15 Gm. of Purified Talc. Purified Siliceous Earth (Kieselguhr) is added to the alternative distributing and filtering media. Recently boiled distilled water is directed. Aromatic Water should not be allowed to freeze.

Aqua.—"Without odor or taste" changed to "practically tasteless and odorless." Odorless when heated nearly to boiling and agitated. Solids limited to 0.03 Gm. in 100 Cc., changed from "0.05 Gm. in 100 Cc." Tests replacing "heavy metal test": Add 1 Cc. of hydrochloric acid to 100 Cc. of Water and then introduce 50 Cc. of hydrogen sulphide T. S. It should show no darkening after standing fifteen minutes (metals). Add 1 Cc. of hydrochloric acid to 100 Cc. of Water and then introduce 1 Cc. of potassium ferrocyanide T. S.; no blue coloration should be produced immediately (iron). New test for limit of chloride: Add 0.5 Cc. of tenth-normal silver nitrate V. S. to 200 Cc. of Water. Filter and add to the filtrate 3 drops of potassium chromate T. S.; a permanent red precipitate should be produced. Modified test for nitrites: Add 1 drop of

*Permission to reprint for purposes of comment can be had on application to the Chairman of the Board of Trustees, J. H. Beal, Scio, Ohio.

hydrochloric acid, 1 Cc. of sulphanilic acid T. S. and 1 Cc. of naphthylamine acetate T. S. to 100 Cc. of Water in a Nessler jar, stirring with a glass rod after each addition. Closely cover the jar with a glass plate and place it upon a white surface and view it from above; no pink coloration should appear within five minutes. Modified test for nitrates: Add 1 Cc. of sodium carbonate T. S. to 100 Cc. of Water and evaporate the liquid in a small porcelain dish just to dryness. Moisten the residue thoroughly with 2 Cc. of phenol-sulphonic acid T. S., gently warm the dish, then add 20 Cc. of ammonia water and sufficient distilled water to measure 100 Cc. Any yellow color produced should not be greater than that obtained by evaporating 0.0021 Gm. of potassium nitrate, dissolved in 3 Cc. of distilled water and 1 Cc. of sodium carbonate T. S. to dryness and treating the residue in the same manner as the residue from the Water; the comparison of colors must be made in Nessler jars of the same diameter and size. In tests for ammonium compounds add 2 Cc. of reagent to 50 Cc. of Water and observe through a Nessler jar.

Aqua Ammoniæ.—Rubric changed from "10 percent." to "not less than 9.5 percent. nor more than 10.5 percent., by weight, of ammonia." Specific gravity changed from "0.958" to "about 0.958" at 25° C. "Completely volatilized at 100° C." changed to "not more than 0.005 Gm. of residue from 25 Cc. of Ammonia Water when evaporated in a platinum dish at 120° C."

Aqua Ammoniæ Fortior.—Rubric changed from "28 percent." to "not less than 27 percent. nor more than 29 percent. by weight, of ammonia." Specific gravity changed from "0.897" to "about 0.897" at 25° C.

Aqua Amygdalæ Amaræ.—Recently boiled distilled water directed.

Aqua Anisi.—Recently boiled distilled water directed.

Aqua Aurantii Florum.—Must comply with description and tests under Aqua Aurantii Florum Fortior. Dilute with recently boiled distilled water.

Aqua Aurantii Florum Fortior.—Added requirement: It should be free from empyreuma, mustiness and mucilaginous growths. Added test: It should be neutral or show only a slightly acid reaction with litmus and should leave no residue on evaporation.

Aqua Camphoræ.—Recently boiled distilled water directed.

Aqua Chloroformi.—Recently boiled distilled water directed.

Aqua Cinnamomi.—Recently boiled distilled water directed.

Aqua Creosoti.—Recently boiled distilled water directed.

Aqua Destillata.—Amount of distillate collected changed from 800 volumes to 750 volumes. Any other kind of distillatory apparatus may be used if the water complies with the tests given. "Neutral to litmus" changed to "neutral to indicators" (see page —). Heavy metal test replaced by the requirement that 100 Cc. portions should show no alteration on the addition of hydrogen sulphide T. S. or ammonium sulphide T. S. New ammonia test: "Distilled water should show no marked brown coloration when 1 Cc. of Nessler's reagent is added to 100 Cc. of the water. Residue when evaporated to dryness on a water-bath changed from "0.005 Gm. from 100 Cc." to "0.001 Gm. from 100 Cc." In test for

oxidizable substances the requirement that the color should not wholly disappear after ten hours is omitted.

Aqua Destillata Sterilisata.—Freshly Distilled Water, a sufficient quantity. Transfer the necessary quantity of freshly Distilled Water to a flask of hard-glass, of sufficient size, which has previously been cleansed and sterilized as described in paragraph No. 1 under Sterilization. Close the mouth of the flask with a pledget of sterilized purified cotton, boil the contents vigorously for 30 minutes and allow it to cool without removing the cotton plug. Finally protect the mouth of the flask and the cotton pledget from infection with dust by wrapping it in sterilized paper. Sterilized Distilled Water should be used within 48 hours after its preparation wherever practicable.

Aqua Fœniculi.—Recently boiled distilled water directed.

Aqua Menthæ Piperitæ.—Recently boiled distilled water directed.

Aqua Menthæ Viridis.—Recently boiled distilled water directed.

Aqua Rosæ.—Must comply with description and tests given under Aqua Rosæ Fortior. Dilute with recently boiled distilled water.

Aqua Rosæ Fortior.—Added requirement: It should be free from mustiness and mucilaginous growths. Added test: It should be neutral or show only a slightly acid reaction with litmus and should leave no residue on evaporation.

SPIRITS.

Spiritus Aetheris.—No change.

Spiritus Aetheris Nitrosi.—Rubric changed from "not less than 4 percent." to "not less than 3.5 percent. nor more than 4 percent. of ethyl nitrite."

Spiritus Ammoniæ Aromaticus.—No change.

Spiritus Amygdalæ Amaræ.—No change.

Spiritus Anisi.—No change.

Spiritus Aurantii Compositus.—No change.

Spiritus Camphoræ.—No change in formula and directions. Assay will be reported later.

Spiritus Chloroformi.—No change.

Spiritus Cinnamomi.—No change.

Spiritus Gaultheriæ.—No change.

Spiritus Glycerylis Nitratis.—Rubric changed from "1 percent. by weight" to "not less than 1 percent. nor more than 1.1 percent. by weight of Glyceryl Trinitrate. Added test: On heating about 10 Cc. of Spirit of Nitroglycerin on a water-bath with 1 Cc. of potassium hydroxide T. S. until the alcohol is evaporated, and then heating a portion of the residue with about 0.5 Gm. of potassium bisulphate, the pungent odor of acrolein will be evolved. On dissolving the remainder of the residue in 2 Cc. of distilled water acidulated with diluted sulphuric acid, then adding a few drops of diphenylamine T. S. and pouring the solution upon 2 Cc. of sulphuric acid in a test-tube so as to form a separate layer, a dark blue color will be produced at the zone of contact. Modified test: On

mixing 10 Cc. of the Spirit with 11 Cc. of distilled water, both previously cooled to 15° C., the mixture should be slightly opalescent. On adding 1 Cc. more of distilled water, a distinct turbidity should be produced. Assay: Weigh accurately not more than about 5 Cc. of the Spirit, allow it to evaporate spontaneously in a tared dish protected from dust, and dry the residue to a constant weight in a desiccator. The weight obtained should correspond to not less than 1 percent. nor more than 1.1 percent. of glyceryl trinitrate. Statement requiring rejection if specific gravity be above 0.830 or if 10 Cc. be rendered turbid by less than 10 Cc. of water is omitted.

Spiritus Juniperi.—No change.

Spiritus Juniperi Compositus.—No change.

Spiritus Lavandulæ.—No change.

Spiritus Menthæ Piperitæ and Spiritus Menthæ Viridis.—Modified directions: Macerate the Peppermint leaves (and respectively the Spearmint leaves), freed as much as possible from stems, during one hour, in 500 Cc. of water and then strongly express them. Add the macerated leaves to the alcoholic solution of the oil, macerate the mixture during six hours, with frequent agitation, and then immediately filter it. Store the product in amber-colored bottles.

SOLUTIONS.

Liquor Acidi Arsenosi.—Rubric changed from "Arsenous Acid corresponding to 1 percent. of arsenic trioxide" to "Arsenous Acid corresponding to not less than 0.975 percent. nor more than 1.025 percent. of arsenic trioxide." Specific gravity added: "About 1.025 at 25° C."

Liquor Ammonii Acetatis.—Specific gravity added: "About 1.018 at 25° C." "Wholly volatile" changed to "volatile; not more than 0.01 percent. of ash remaining on ignition." Assay added: Weigh accurately about 25 Gm. of Solution of Ammonium Acetate, dilute it with 100 Cc. of distilled water and transfer it to a distilling flask fitted with a safety tube. Render it alkaline with potassium hydroxide T. S. and subject the liquid to distillation until no more ammonia is evolved. The distillate should be received under the surface of 50 Cc. of normal sulphuric acid V. S. contained in a flask. The residual titration with normal potassium hydroxide V. S., using methyl-orange T. S. as indicator, should show not less than 7 percent. of ammonium acetate.

Liquor Arseni et Hydrargyri Iodidi.—Rubric changed from "not less than 1 percent. of Arsenous Iodide and 1 percent. of Mercuric Iodide" to "not less than 0.95 percent. nor more than 1.05 percent. of Arsenous Iodide and not less than 0.95 percent. nor more than 1.05 percent. of Red Mercuric Iodide." Added tests: One Cc. of Solution of Arsenous and Mercuric Iodides, mixed with 10 Cc. of distilled water and to which a few drops of lead acetate T. S. is added, should produce a bright yellow precipitate. Add a few drops of Solution of Arsenous and Mercuric Iodides to a mixture of 0.1 Gm. of zinc and 5 Cc. of diluted hydrochloric acid in a test-tube, and cover the mouth of the test-tube with a filter paper which has been moistened with mercuric chloride T. S. and dried. A yellow colored stain should appear within one minute upon the inner surface of the filter paper. Assays: Weigh accurately about 25 Gm. of Solution of

Arsenous and Mercuric Iodides, mix it with 2 Gm. of sodium bicarbonate and titrate the solution with tenth-normal iodine V. S., using starch T. S. as indicator. It should show not less than 0.95 percent. nor more than 1.05 percent. of Arsenous Iodide. Weigh accurately about 25 Gm. of Solution of Arsenous and Mercuric Iodides, mix it with 5 Cc. of potassium hydroxide T. S. and 5 Cc. of solution of formaldehyde in a flask, and place the mixture upon a water-bath until the mercuric salt has been completely reduced to metallic mercury. Carefully decant the clear, supernatant liquid from the residue of metallic mercury and wash the mercury carefully by decantation, with two successive portions of 25 Cc. each of distilled water. Convert the residue of metallic mercury into mercuric nitrate by the action of 5 Cc. of nitric acid and dilute the solution with 50 Cc. of distilled water. The subsequent titration with tenth-normal potassium sulphocyanate V. S. to the formation of a permanent pink color, should show not less than 0.95 percent. nor more than 1.05 percent. of Red Mercuric Iodide.

Liquor Calcis.—In the process the magma is to be washed with boiling distilled water until the washings show not more than a faint cloudiness with $AgNO_3$ T. S. Lime Water should be frequently prepared from fresh magma of Calcium Hydroxide and not made by shaking up the sediment with a fresh portion of Distilled Water, unless the product be assayed and found to be of full strength. Requirement that it should conform to the tests under Calx omitted.

Liquor Chlori Compositus.—Rubric changed from "about 0.4 percent. of Chlorine with some oxides of chlorine" to "a mixture of chlorine and chlorine oxides equivalent to at least 0.35 Gm. of chlorine in each 100 Cc. of the solution." Added tests: Compound Solution of Chlorine when evaporated to dryness on a water-bath leaves a white residue of potassium chloride. Add 1 Gm. of potassium iodide to 25 Cc. of Compound Solution of Chlorine in a flask. The subsequent titration with tenth-normal sodium thiosulphate V. S., starch T. S. being used as indicator, should show not less than 0.35 Gm. of available chlorine in each 100 Cc.

Liquor Cresolis Compositus.—Cresol, 500 Gm.; Linseed Oil, 300 Gm.; Potassium Hydroxide, 80 Gm.; Alcohol, 30 Cc.; Water, a sufficient quantity to make 1000 Gm. Add the Potassium Hydroxide dissolved in 50 Cc. of water to the Linseed Oil, both at 70° C. Incorporate the Alcohol and heat the mixture without stirring until soluble in boiling water; while yet warm add the Cresol, heat at 70° C. until clear and add water to make 1000 Gm.

Liquor Ferri Chloridi.—Test for "absence of salts of the fixed alkalies" changed to "residue on evaporation not more than 0.10 percent." Assay: Weigh accurately about 2 Gm. of Solution of Ferric Chloride, dilute it with distilled water to a volume of about 25 Cc. and mix it with 5 Cc. of hydrochloric acid and about 3 Gm. of potassium iodide. Allow the mixture to stand for 30 minutes at a temperature of 40° C., cool, and then dilute with 100 Cc. of distilled water. The titration of this solution with tenth-normal sodium thiosulphate V. S., starch T. S. being used as indicator, should show not less than 10 percent. of iron.

Liquor Ferri et Ammonii Acetatis.—Added tests: Acid reaction with litmus. Specific gravity about 1.0385. The solution yields a blue precipitate with potassium ferrocyanide T. S.; ammonia water produces no precipitate. When

Solution of Iron and Ammonium Acetate is heated with potassium hydroxide T. S., ammonia is evolved. On adding 1 Cc. each of sulphuric acid and alcohol to 5 Cc. of the Solution and boiling the mixture, ethyl acetate will be formed, recognizable by its odor.

Liquor Ferri Subsulphatis.—Rubric changed from 13.57 percent. to 13.50 percent. of metallic iron. The test showing "difference from tersulphate" omitted.

Liquor Ferri Tersulphatis.—The test showing "difference from subsulphate" is omitted.

Liquor Formaldehydi.—From 7 to 14 percent. of methyl alcohol added to prevent polymerization. Specific gravity changed from "1.075 to 1.078" to "from 1.070 to 1.095 at 25° C." On evaporating 20 Cc. of Solution of Formaldehyde to dryness on a water-bath, a white, amorphous mass (paraformaldehyde) should remain, and upon igniting this residue the yield of ash should not exceed 0.05 percent. (fixed impurities). Changed from "no residue on evaporation and ignition" to "ash not exceeding 0.05 percent." Test for formic and other acids changed from "absence of not more than 0.1 percent." to "not more than 0.2 percent." Tests for chloride, sulphate, iron, lead, copper and calcium replaced by "ten Cc. of an aqueous dilution of the solution (1 in 20) slightly acidulated with hydrochloric acid should not respond to the test for heavy metals." In assay allow the mixture to stand for thirty minutes instead of ten minutes before titrating back with normal H_2SO_4 V. S.

Liquor Hydrogenii Dioxidi.—(Aqua Hydrogenii Dioxidi, U. S. P. VIII.) Add to rubric: Acetanilide may be used to prevent deterioration and pressure in this solution in an amount not exceeding 0.4 Gm. to each 1000 Cc. Solution of Hydrogen Dioxide in which acetanilide has been used as a preservative sometimes acquires a yellow color or an odor of nitrobenzol. If either of these conditions is noticed the solution should not be dispensed for medicinal purposes. Free acid test replaced by the following: On titrating 25 Cc. of Solution of Hydrogen Dioxide with tenth-normal potassium hydroxide V. S., not more than 2.0 Cc. of volumetric solution should be required to effect neutralization, phenolphthalein T. S. being used as indicator (free acid). Modified tests: Evaporate 50 Cc. of the Solution, previously rendered alkaline by the addition of sodium hydroxide T. S., to dryness on a water-bath and transfer the dry residue to a platinum crucible. Moisten the residue with sulphuric acid, cover the crucible with a watch-glass, the converse side of which is coated with a thin layer of yellow wax and afterwards scratched so as to expose the glass and then cooled by placing water in the concave side and standing in this a small beaker which must be kept filled with cold water. Now heat the crucible and contents in a water-bath for one hour; the surface of the watch-glass after being cleaned should exhibit no sign of corrosion (hydrofluoric acid). On evaporating 1 Cc. of the solution to dryness on a water-bath and dissolving the residue in 10 Cc. of distilled water containing 1 Cc. of diluted hydrochloric acid, the liquid should not respond to the test for heavy metals. Added tests: Add 4 drops of sodium acetate T. S. to 10 Cc. of the solution and follow with 4 drops of calcium chloride T. S. No turbidity or precipitate should be produced within 10 minutes (oxalic acid). Subject 100 Cc. of Solution of Hydogen Dioxide to the shaking-out process with

two portions of 25 Cc. each of chloroform and evaporate the chloroformic solution to dryness at room temperature in a tared glass dish. A crystalline residue may be obtained which should not weigh more than 0.040 Gm. and which, upon heating with 1 Cc. of sodium hydroxide T. S. and 2 drops of chloroform, will evolve the disagreeable odor of phenyl-isocyanide (presence and limit of acetanilide).

Liquor Iodi Compositus.—Rubric changed from "not less than 5 percent. of iodine and 10 percent. of potassium iodide" to "not less than 4.75 percent. nor more than 5.25 percent. of iodine, and not less than 9.5 percent. nor more than 10.5 percent. of potassium iodide." Added tests: A drop of Compound Solution of Iodine when added to 1 Cc. of starch T. S., diluted with 10 Cc. of water, produces a deep blue color. Assays: Weigh accurately about 10 Gm. of Compound Solution of Iodine, evaporate it in a tared, porcelain dish on a water-bath, and gently heat the residue over a Bunsen burner. It should leave a residue of not less than 9.5 percent. nor more than 10.5 percent. of a salt corresponding to the identity tests for potassium iodide given under Potassii Iodidum. Weigh accurately about 10 Gm. of Compound Solution of Iodine, dilute it with 25 Cc. of distilled water and titrate with tenth-normal sodium thiosulphate V. S., starch T. S. being used as indicator. It should show not less than 4.75 percent. nor more than 5.25 percent. of Iodine.

Liquor Magnesii Citratis.—Magnesium Carbonate, 15.0 Gm.; Citric Acid, 33.0 Gm.; Syrup, 60.0 Cc.; Purified Talc, 5.0 Gm.; Oil of Lemon, 0.1 Cc.; Potassium Bicarbonate, 2.5 Gm.; Water, a sufficient quantity. Dissolve the Citric Acid in 150 Cc. of hot water in a porcelain dish, and, having added the Magnesium Carbonate previously mixed with 100 Cc. of water, stir until it is dissolved. Then add the Syrup, heat the mixed liquids to the boiling point, immediately introduce the Oil of Lemon, previously triturated with the Purified Talc, and filter the mixture, while hot, into a strong bottle (previously rinsed with boiling water) of the capacity of about 300 Cc. Introduce enough boiled water to nearly fill the bottle, stopper it with purified cotton until cold, then drop in the Potassium Bicarbonate, and immediately stopper the bottle securely. Lastly, shake the solution occasionally, until the Potassium Bicarbonate is dissolved. Keep the bottle on its side in a cool place, preferably in an ice chest.

Liquor Plumbi Subacetatis.—Change in assay: Warm the clear acidified liquid to 80° C. before titrating with normal potassium permanganate V. S. Reference to tests under Plumbi Acetas omitted. Added tests: Solution of Lead Subacetate, diluted with 10 parts of recently boiled distilled water, yields a black precipitate with hydrogen sulphide T. S., a yellow precipitate with potassium iodide T. S., and a white precipitate with diluted sulphuric acid. Solution of Lead Subacetate should yield with potassium ferrocyanide T. S. a precipitate which should not be perceptibly blue and red (limit of iron and copper).

Liquor Plumbi Subacetatis Dilutus.—No change.

Liquor Potassii Arsenitis.—Rubric changed from "Potassium Arsenite corresponding in amount to 1 percent." to "Potassium Arsenite corresponding in amount to not less than 0.975 percent. and not more than 1.025 percent. of arsenic trioxide." Added tests: It shows an alkaline reaction with litmus. On acidulating 4 Cc. of Solution of Potassium Arsenite with nitric acid and adding 1 Cc.

of silver nitrate T. S., a yellow precipitate should be produced free from red or reddish-brown color (arsenate).

Liquor Potassii Citratis.—An aqueous solution containing not less than 8 percent. of anhydrous Potassium Citrate ($K_3C_6H_5O_7$=306.34) (corresponding to about 8.5 percent. of the hydrated salt), with small amounts of citric and carbonic acids. Potassium Bicarbonate, 8 Gm.; Citric Acid, 6 Gm.; Distilled Water, a sufficient quantity to make one hundred cubic centimeters. Dissolve the Potassium Bicarbonate and the Citric Acid, each, in forty cubic centimeters of Distilled Water. Filter the solutions separately, and wash the filters with enough Distilled Water to obtain in each case fifty cubic centimeters. Finally, mix the two solutions, and, when effervescence has nearly ceased, transfer the liquid to a bottle. This preparation should be freshly made when wanted. Modified assay: Weigh accurately about 15 Gm. of Solution of Potassium Citrate, evaporate it to dryness in a platinum vessel, then thoroughly carbonize the residue at a temperature not exceeding red heat, transfer the vessel and its contents to a beaker, and boil them for thirty minutes with a mixture of 50 Cc. of half-normal sulphuric acid V. S. and 50 Cc. of distilled water. Then filter the mixture, wash the residue with hot distilled water until the washings cease to affect litmus, cool the filtrate and subject the washings to residual titration with half-normal potassium hydroxide T. S. It should show not less than 8 percent. of anhydrous Potassium Citrate, methyl-orange T. S. being used as indicator..

Liquor Potassii Hydroxidi.—Rubric changed from "containing about 5 percent.," to "containing not less than 4.5 percent. of Potassium Hydroxide." Instructions for using Potassium Hydroxide of other than official strength omitted. Specific gravity, about 1.046 at 25° C. Added test: Weigh accurately about 20 Gm. of Solution of Potassium Hydroxide and titrate it directly with normal hydrochloric acid V. S., using methyl-orange T. S. as indicator. It should show not more than 5.5 percent. of alkalinity, calculated as potassium hydroxide (limit of carbonate). Modified assay: Weigh accurately about 50 Gm. of Solution of Potassium Hydroxide, transfer it to a 250 Cc. graduated flask, add 20 Cc. of barium chloride T. S. and fill the flask to the mark with distilled water, which has previously been boiled and cooled. Then thoroughly agitate the liquid, pass it through a filter which has not been previously moistened (rejecting the first 20 Cc.) and titrate 100 Cc. of the filtrate with normal hydrochloric acid V. S., using phenolphthalein T. S. as indicator. It should show not less than 4.5 percent. of Potassium Hydroxide, when calculated to the amount of Solution originally taken.

Liquor Sodæ Chlorinatæ.—Rubric changed from "containing at least 2.4 percent." to "containing at least 2.5 percent. by weight of available chlorine." Modified formula: Monohydrated Sodium Carbonate, 70 Gm.; Chlorinated Lime, 100 Gm.; Water, a sufficient quantity to make 1000 Gm. Triturate the Chlorinated Lime with five hundred cubic centimeters of water gradually added until a uniform mixture results. Dissolve the Monohydrated Sodium Carbonate in five hundred cubic centimeters of hot water, and add this solution to the previously obtained magma in a suitable vessel. Stir or shake the mixture thoroughly, and if it becomes gelatinous warm the vessel very gently until it again liquefies. Then

transfer the mixture to a wetted muslin strainer returning the first portion until the liquid passes through clear and when no more liquid drains from it, wash the precipitate with enough water to make the product weigh one thousand grammes. Specific gravity omitted. Modified assay: Weigh accurately about 7 Gm. of Solution of Chlorinated Soda in a flask, mix it with 50 Cc. of distilled water and add 1 Gm. of potassium iodide and 5 Cc. of acetic acid. The subsequent titration with tenth-normal sodium thiosulphate V. S., starch T. S. being used as indicator, should show not less than 2.5 percent. of available chlorine.

Liquor Sodii Arsenatis.—Rubric changed from "not less than 1 percent." to "not less than 0.975 nor more than 1.025 percent. of anhydrous Sodium Arsenate." The Exsiccated Sodium Arsenate must be dried to constant weight at 150° C. before weighing. Add to assay: Weigh accurately about 30 Cc. of Solution of Sodium Arsenate, heat the solution to 80° C. and add 10 Cc. of hydrochloric acid and 3 Gm. of potassium iodide. Allow the mixture to stand for 15 minutes at 80° C., cool the mixture and then titrate it with tenth-normal sodium thiosulphate V. S., starch T. S. being used as indicator. It should show not less than 0.95 percent. nor more than 1.00 percent. of anhydrous Sodium Arsenate.

Liquor Sodii Chloridi Physiologicus.—Sodium Chloride, 8.5 Gm.; Distilled Water, a sufficient quantity to make 1000 Cc. Dissolve the Sodium Chloride in sufficient freshly Distilled Water to measure 1000 Cc. and filter. Then sterilize the filtered solution of Sodium Chloride, preferably in an autoclave, under steam pressure, at a temperature of from 115° to 120° C. for 15 minutes, or by boiling it during at least one hour. The solution should be freshly prepared before it is dispensed.

Liquor Sodii Hydroxidi.—Rubric changed from "about 5 percent." to "not less than 4.5 percent. of Sodium Hydroxide." Instructions for using Sodium Hydroxide of other than official strength omitted. Added test: Weigh accurately about 20 Gm. of Solution of Sodium Hydroxide and titrate it directly with normal hydrochloric acid V. S., uring methyl-orange T. S. as indicator. It should show not more than 5.5 percent. of alkalinity, calculated as sodium hydroxide (limit of carbonate). Modified assays: Weigh accurately about 50 Gm. of Solution of Sodium Hydroxide, transfer it to a 250 Cc. graduated flask, add 20 Cc. of barium chloride T. S. and fill the flask to the mark with distilled water, which has been previously boiled and cooled. Then thoroughly agitate the liquid and pass it through a filter which has not been previously moistened (rejecting the first 20 Cc.) and titrate 100 Cc. of the clear filtrate with normal hydrochloric acid V. S., using phenolphthalein T. S. as indicator. It should show not less than 4.5 percent. of Sodium Hydroxide when calculated to the amount of solution originally taken. Each cubic centimeter of normal hydrochloric acid V. S. used corresponds to 0.04001 Gm of Sodium Hydroxide (NaOH).

Liquor Zinci Chloridi.—Added assay: Weigh accurately about 0.6 Gm. of Solution of Zinc Chloride, in a tared flask, add 20 Cc. of distilled water and 50 Cc. of tenth-normal silver nitrate V. S., shake the mixture well and then add 2 Cc. of nitric acid and 2 Cc. of ferric ammonium sulphate T. S. The residual

titration of this liquid with tenth-normal potassium sulphocyanate V. S. should show not less than 49 percent. of Ziinc Chloride.

EXTRACTS.

Powdered Extracts.—In the preparation of Powdered Extracts, it has been necessary to use solvents that will extract the active principles of the drugs, and only the minimum amount of the inert constituents. Where the drug contains an oily constituent that is extracted by the menstruum directed, it becomes necessary to adopt a method for the separation of this oil so that the product will retain a satisfactory pulverulent form. The concentration of the liquids should be started without delay and undue exposure to heat must be avoided. The limit of temperature as stated in the formulas, should not be exceeded and the use of apparatus for carrying on the concentration under reduced pressure is recommended. The final drying of the soft extract can be greatly facilitated by spreading it upon plates of glass or tinned metal and exposing it to currents of warm air. For the convenience of the prescriber, the standards of strength for the powdered extracts have been so adjusted that each bears a definite relation to that of its respective drug of the average strength and a statement of the standard precedes the formula. For these powdered extracts that can be reliably assayed, alkaloidal standards have been adopted and assay methods are directed for the determination of their strength and to provide for standarization. In standardizing powdered extracts, suitable inert powders must be selected as diluents. In the official formulas, dried starch and magnesium oxide are directed, but it is permissible for the manufacturer to select as inert diluents, sugar, sugar of milk, powdered glycyrrhiza, magnesium carbonate or the finely powdered drug or marc from which the respective extract is made. In completing powdered extracts they must be thoroughly dried, powdered, mixed with the diluent and passed through a fine sieve and should be preserved in tightly-stoppered, small, wide-mouthed, amber-colored bottles, and stored in a cool and dry place. Pilular extracts should be protected from exposure to sunlight and air by keeping them in tightly-covered glass or earthenware jars.

Extractum Aconiti Pulveratum.—One Gm. of the Powdered Extract to represent 4 Gm. of average strength Aconite. Practically exhaust 1000 Gm. of Aconite, in No. 60 powder, by percolation, reserving the first 1000 Cc. of percolate. Use the following menstruum: Menstruum I: Tartaric acid 5 Gm. and alcohol 500 Cc.; Menstruum II: Alcohol. Distil the alcohol first from the second percolate, afterwards adding the reserve and reducing the residue to about 100 Cc. Treat this residue with two successive portions of 250 Cc. each of purified petroleum benzin, discarding the benzin, then add 50 Gm. of dried starch and concentrate the mixture on a water-bath, with frequent stirring. Spread the thick extract on glass plates, dry it in an air-bath at a temperature not exceeding 80° C.; powder the product, assay it and add enough dried starch to make the finished Powdered Extract conform to the required alkaloidal standard. Mix it thoroughly.

Extractum Belladonnæ Foliorum.—One Gm. of the Extract to represent 4 Gm. of average strength Belladonna Leaves. Powder changed from No. 40 to No. 60. Menstruum: Alcohol, 3 volumes, and water, 1 volume. Former menstruum:

Alcohol 2 volumes, water 1 volume. Evaporate percolate at a temperature not exceeding 70° C.; changed from 50° C. Add sufficient glucose, after assay, to make the finished Extract conform to the required alkaloidal standard. Sugar of Milk formerly used as a diluent.

Extractum Belladonnæ Foliorum Pulveratum.—One Gm. of the Powdered Extract to represent 4 Gm. of average strength Belladonna Leaves. Practically exhaust 1000 Gm. of Belladonna Leaves in No. 40 powder, by percolation, reserving the first 1000 Cc. of percolate and using alcohol as the menstruum. Distil the alcohol first from the second percolate, afterwards adding the reserve and reducing the residue to a syrupy consistence. Evaporate this thick extract to a pilular consistence, at a temperature not exceeding 80° C., add 50 Gm. of dried starch and again heat at the same temperature, frequently stirring, until nearly dry. Then incorporate 20 Gm. of magnesium oxide and thoroughly dry the mixture in warm air. Powder the product, assay it, and add enough dried starch to make the finished Powdered Extract conform to the required alkaloidal standard. Mix it thoroughly.

Extractum Cannabis Indicæ.—Temperature for evaporation of percolate limited to 70° C.

Extractum Cascaræ Sagradæ Pulveratum.—One Gm. of Powdered Extract of Cascara Sagrada to represent 3 Gm. of the drug. Practically exhaust 1000 Gm. of Cascara Sagrada in No. 20 powder, by percolation, using boiling water as the menstruum. Evaporate the percolate to dryness on a water-bath or steam-bath. Reduce the extract to a fine powder, weigh it, add 25 Gm. of magnesium oxide and enough dried starch to make the product weigh 300 Gm. Mix it thoroughly. Former menstruum: Alcohol, 125 volumes, and water, 875 volumes. Powdered glycyrrhiza formerly used as a diluent in making up the final weight.

Extractum Cimcifugæ Pulveratum.—One Gm. of Powdered Extract of Cimcifuga to represent 4 Gm. of the drug. Practically exhaust 1000 Gm. of Cimcifuga in No. 40 powder, by percolation, using alcohol as the menstruum. Distil the alcohol from the percolate and evaporate the residue to dryness, with frequent stirring, on a water-bath, at a temperature not exceeding 80° C. Powder the extract, weigh it, add sufficient dried starch to make the product weigh 250 Gm. and mix thoroughly. Former extract prepared by evaporating the fluidextract to complete dryness, powdering the product and using powdered glycyrrhiza as a diluent in making up the final weight.

Extractum Colchici Cormi Pulveratum.—One Gm. of the Powdered Extract to represent 4 Gm. of average strength Colchicum Corm. Practically exhaust 1000 Gm. of Colchicum Corm, in No. 60 powder, by percolation, using alcohol as the menstruum. Distil the alcohol from the percolate, at as low a temperature as possible, until the residue measures about 150 Cc. Treat this residue with two successive portions of purified petroleum benzin, discarding the benzin. Evaporate this syrupy residue to a thick extract, in a dish, incorporate 50 Gm. of dried starch, spread the mixture on glass plates and dry it thoroughly in an air bath at a temperature not exceeding 80° C. Powder the product, assay it, and add enough dried starch to make the finished Powdered Extract conform to the required alkaloidal standard. Mix it thoroughly. Former Extract of pilular

consistence. Menstrua formerly used. Menstruum I: Acetic acid 350 Cc., and water 1500 Cc. Menstruum II: Water.

Extractum Colocynthidis Pulveratum.—One Gm. of Powdered Extract of Colocynth to represent 4 Gm. of the drug. Practically exhaust Colocynth in No. 20 powder, by percolation, using diluted alcohol as the menstruum. Distil the alcohol from the percolate, evaporate the residue to dryness on a water-bath or steam-bath, powder the extract, weigh it, and add sufficient dried starch to make the product weigh 250 Gm. Mix it thoroughly. Former process called for combined maceration and percolation, and the end-product was not required to be of a definite weight.

Extractum Colocynthidis Compositum Pulveratum.—Purified Aloes changed to Curaçao Aloes, 60 Gm. of whole Cardamom changed to 50 Gm. of Cardamom Seed and enough soap used to make 1000 Gm. The other ingredients remain the same, all being mixed by trituration and then reduced to a No. 60 powder.

Extractum Ergotæ.—Exhaust the Ergot with purified petroleum bezin and dry the drug; then practically exhaust this drug by percolation with the following. Menstruum I: Alcohol, 850 Cc., water, 150 Cc., and hydrochloric acid, 10 Cc. Menstruum II: Alcohol, 85 volumes, and water 15 volumes. Evaporate the percolate so obtained, at a temperature not exceeding 70° C., to pilular consistence. The acid is not neutralized as formerly and glycerin is not added to the evaporated extract.

Extractum Euonymi Pulveratum.—One Gm. of Powdered Extract of Euonymus to represent 4 Gm. of the drug. Practically exhaust 1000 Gm. of Euonymus in No. 40 powder, by percolation, using alcohol 4 volumes and water 1 volume as the menstruum. Distil the alcohol from the percolate and evaporate the residue to dryness, with frequent stirring, at a temperature not exceeding 70° C. Powder the extract, weigh it, add sufficient dried starch to make the product weigh 250 Gm. and mix thoroughly. Former Extract prepared by evaporating the fluidextract to complete dryness, powdering the product and using powdered glycyrrhiza as a diluent in making up the final weight.

Extractum Fellis Bovis Pulveratum.—To replace Purified Oxgall. One Gm. of Powdered Extract of Oxgall to represent 8 Gm. of Oxgall. Add 1000 Cc. of alcohol slowly and with agitation to 800 Gm. of Oxgall contained in a bottle, macerate for two days and then decant the liquid portion. Wash the residue in the bottle with an additional 500 Cc. of alcohol, decant the liquid portion, mix it with the liquid first separated and filter the mixture. Distil the alcohol from the filtrate and evaporate the residue to a thick extract at a temperature between 75° and 80° C. Spread this extract on glass plates and thoroughly dry in warm air, at a temperature not exceediing 80° C. Powder the extract, weigh it, and add sufficient dried starch to make 100 Gm. Mix it thoroughly.

Extractum Gelsemii Pulveratum.—One Gm. of Powdered Extract of Gelsemium to represent 4 Gm. of the drug. Practically exhaust 1000 Gm. of Gelsemium in No. 40 powder, by percolation, using alcohol as the menstruum. Distil the alcohol from the percolate until the residue measures about 500 Cc., transfer this to a dish and evaporate it to a soft extract with frequent stirring, at a temperature not exceeding 70° C. Add 50 Gm. of a mixture of 1 part of magnesium

oxide and 3 parts of dried starch, mix well, spread the mass in a thin layer on glass or tinned-metal plates or in a porcelain dish and continue the drying in an air-bath until thoroughly dry, at a temperature not exceeding 70° C. Powder the extract, weigh it, add sufficient of the mixture of magnesium oxide and dried starch to make 250 Gm., and mix thoroughly.

Extractum Gentianæ.—No change.

Extractum Glycyrrhizæ.—Added requirement: Ash not exceeding 6 percent.

Extractum Glycyrrhizæ Purum.—The menstruum is to be chloroform water instead of water after the ammonia has been used.

Extractum Hydrastis Pulveratum.—One Gm. of the Powdered Extract to represent 4 Gm. of average strength Hydrastis. Practically exhaust 1000 Gm. of Hydrastis in No. 40 powder, by percolation, using the following menstrua: Menstruum I: Tartaric acid 5 Gm. and alcohol 1000 Cc.; Menstruum II: Alcohol. Distil the alcohol from the percolate, and evaporate the residue to a soft extract, with frequent stirring, at a temperature not exceeding 70° C. Add 50 Gm. of a mixture of 1 part of magnesium oxide and 3 parts of dried starch, spread the mass in a thin layer on glass or tinned-metal plates or in a porcelain dish and continue the drying over an air-bath until thoroughly dry, at a temperature not exceeding 70° C. Powder the Extract, assay it and add enough of the mixture of magnesium oxide and dried starch to make the finished Powdered Extract conform to the required alkaloidal standard. Mix it thoroughly.

Extractum Hyoscyami.—One Gm. of the Extract to represent 4 Gm. of average strength Hyoscyamus. Practically exhaust Hyoscyamus in No. 40 powder, by percolation, with the following menstruum: Alcohol 3 volumes, and water 1 volume. Evaporate the percolate to a pilular consistence at a temperature not exceeding 70° C., and, after assay, add sufficient glucose to make the finished Extract conform to the required alkaloidal standard. Former Extract prepared by evaporating the fluidextract to pilular consistence, and adjusting the weight by assay, sugar of milk being used as the diluent.

Extractum Malti.—The temperature for maceration and evaporation not to exceed 60° C., changed from 55° C. Evaporate until of a specific gravity of not less than 1.350, nor more than 1.400 at 25° C.; formerly "to the consistence of thick honey."

Extractum Nucis Vomicæ Pulveratum.—One Gm. of the Powdered Extract to represent 4 Gm. of average strength Nux Vomica. Practically exhaust 1000 Gm. of Nux Vomica, in No. 20 powder, by percolation, using alcohol 3 volumes, and water 1 volume as the menstruum. Distil the alcohol from the percolate and reduce the residue to about 200 Cc. Treat this residue with a mixture of 150 Cc. of water and 200 Cc. of purified petroleum benzin, separate the benzin layer, again treat the residue with 100 Cc. of purified petroleum benzin and decant as before. Wash the separated benzin with three successive 100 Cc. portions of a mixture made by adding 10 parts of sulphuric acid to 100 parts of water. Collect these acid washings, make alkaline with ammonia water and shake out with three portions of chloroform, 20 Cc., 10 Cc., and 10 Cc. Add the combined chloroform solution to the Extract residue and evaporate the mixture to dryness on a water-bath. Powder the product, assay it, and add enough

of a mixture of magnesium oxide 1 part and dried starch 3 parts to make the finished Powdered Extract conform to the required alkaloidal standard. Mix it thoroughly. Former menstrua: Menstruum I: Acetic acid 500 Cc., and water 1300 Cc.; Menstruum II: Water. Sugar of milk was used as a diluent in making up the final weight.

Extractum Opii Pulveratum.—One Gm. of the Powdered Extract to represent 2 Gm. of average strength Opium. Beat 100 Gm. of Opium in a mortar with 300 Cc. of hot water until a smooth paste is produced, add to this 100 Gm. of clean, white sand, mix it thoroughly and transfer the mixture to a percolator. Practically exhaust the Opium by percolation, using water as the menstruum and evaporate the percolate to dryness in a dish, on a water-bath. Powder the product, assay it and add enough dried starch to make the finished Powdered Extract conform to the required alkaloidal standard. Mix it thoroughly. Former process called for combined maceration and percolation. Sugar of milk was formerly used as a diluent in making up the final weight.

Extractum Rhei Pulveratum.—One Gm. of the Powdered Extract to represent 2 Gm. of average strength Rhubarb. Practically exhaust 1000 Gm. of Rhubarb in No. 40 powder, by percolation, using alcohol 4 volumes, and water 1 volume as the menstruum. Distil the alcohol from the percolate and continue distillation until a residue of syrupy consistence remains; transfer this to a dish and evaporate the mixture to dryness, with frequent stirring, at a temperature not exceeding 80° C. Powder the extract and add 50 Gm. of magnesium oxide and sufficient dried starch to make 500 Gm. Mix it thoroughly. Former Extract prepared by evaporating the fluidextract to pilular consistence.

Extractum Stramonii.—One Gm. of the Extract to represent 4 Gm. of average strength Stramonium. Practically exhaust Stramonium in No. 30 powder by percolating with the following menstruum: Alcohol 3 volumes and water 1 volume. Evaporate the percolate to a pilular consistence at a temperature not exceeding 70° C. and, after assay, add sufficient glucose to make the finished Extract conform to the required alkaloidal standard. Former Extract prepared by evaporating the fluidextract to pilular consistence and adjusting the weight by assay, sugar of milk being used as the diluent.

Extractum Stramonii Pulveratum.—One Gm. of the Powdered Extract to represent 4 Gm. of average strength Stramonium. Practically exhaust 1000 Gm. of Stramonium in No. 40 powder, by percolation, reserving the first 1000 Cc. of percolate. Use alcohol as the menstruum. Distil the alcohol first from the second percolate and reduce it to about 100 Cc., afterwards adding the reserve and reducing the residue to a syrupy consistence. Evaporate this residue in a dish to a soft extract, with frequent stirring, at a temperature not exceeding 70° C., add 50 Gm. of dried starch and continue the heating at the same temperature, with frequent stirring, until the mass is nearly dry. Now incorporate 20 Gm. of magnesium oxide and thoroughly dry it in a current of warm air. Powder the product, assay it, and add enough dried starch to make the finished Powdered Extract conform to the required alkaloidal standard. Mix it thoroughly.

Extractum Sumbul.—Practically exhaust Sumbul in No. 30 powder, by percolation, with the following menstruum: Alcohol 4 volumes and water 1 volume,

and evaporate the percolate to a pilular consistence at a temperature not exceeding 70° C. Former Extract prepared by evaporating the fluidextract to a pilular consistence.

Extractum Taraxaci.—No change.

FLUIDEXTRACTS.

Introductory Statements.—Fluidextracts are concentrated liquid preparations of vegetable drugs, containing alcohol either as a solvent or as a preservative, and bearing a uniform relation to the drug used so that 1 Cc. of the fluidextract approximately represents the activity of 1 Gm. of the air-dried powdered drug. The fluidextracts of this Pharmacopœia, with few exceptions, may be classified according to the menstruum used in the extraction of the drug and the process of manufacture employed. Several drugs require special manipulation to obtain satisfactory fluidextracts, and for these appropriate formulas have been devised and are printed in full in the text. The following type processes are described, and in each formula the process to be used is designated by reference to the type process: Type Process A: In this class are included those fluidextracts that are made with a menstruum of alcohol or a mixture of alcohol and water by the usual process of percolation. Type Process B: In this class are included those fluidextracts in which glycerin or an acid is used in the extraction and two menstrua are successively used. Menstruum I contains the glycerin or acid in definite proportion to the amount of the drug, and Menstruum II, a mixture of alcohol and water intended for completing the exhaustion of the drug. Type Process C: The process of Fractional or Divided Percolation. This is especially recommended for drugs containing volatile ingredients of constituents injured by exposure to heat. This process may likewise be used as an alternative process in the formulas in which Type Process A is directed. Type Process D: In this class are included those fluidextracts in which extraction is effected by infusion and percolation with boiling water, alcohol being added to the concentrated extract as a preservative.

PROCESSES.

Type Process A.—Moisten 1000 Gm. of the powdered drug which is directed with a sufficient quantity of the prescribed menstruum to render it evenly and distinctly damp and to maintain it so after macerating for 6 hours in a tightly covered container. Then pack it in a cylindrical percolator and add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed slowly, gradually adding more menstruum until the drug is practically exhausted. Reserve the first 850 Cc. of the percolate (unless otherwise specified in the formula); recover the alcohol from the remainder and concentrate to a soft extract at a temperature not exceeding 60° C.; dissolve this in the reserved portion, mix thoroughly and finally add a sufficient quantity of the menstruum to obtain 1000 Cc. or the proper volume determined by the assay standard.

Type Process B.—Moisten 1000 Gm. of the powdered drug, which is directed,

with a sufficient quantity of the prescribed Menstruum I, to render it evenly and distinctly damp and to maintain it so after macerating for 6 hours in a tightly covered container; pack it in a cylindrical percolator, add the remainder of Menstruum I, and when this has just disappeared from the surface, gradually add Menstruum II, constantly maintaining a stratum of liquid above the drug. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for 48 hours, and then allow the percolation to proceed slowly, gradually adding Menstruum II, until the drug is practically exhausted. Reserve the first 850 Cc. of the percolate (unless otherwise specified in the formula); recover the alcohol from the remainder and concentrate to a soft extract at a temperature not exceeding 60° C.; dissolve this in the reserved portion, mix thoroughly and finally add a sufficient quantity of Menstruum II to obtain 1000 Cc. or the proper volume determined by the assay standard.

Type Process C.—Divide 1000 Gm. of the drug, which is directed, into three portions of 500 Gm., 300 Gm., and 200 Gm., respectively. Moisten the first portion of the drug (500 Gm.) with a sufficient quantity of the prescribed menstruum to render it evenly and distinctly damp and to maintain it so after macerating for 6 hours in a tightly covered container. Then pack it in a cylindrical percolator and add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for 48 hours and then allow the percolation to proceed slowly, gradually adding more menstruum. Reserve the first 200 Cc. of percolate and continue the percolation until 1500 Cc. of additional percolate have been collected in successive portions of 300 Cc. each. Moisten the second portion of the drug (300 Gm.) with a sufficient quantity of the percolate collected in the preceding operation immediately after the reserved portion, to render it evenly and distinctly damp and to maintain it so after macerating for 6 hours in a tightly covered container. Then pack it in a cylindrical percolator and macerate and percolate in the same manner, using as menstruum the several portions of percolate from the preceding operation in the order in which they have been collected and, if this be insufficient, follow with some of the original menstruum. Reserve the first 300 Cc., continue the percolation and collect the weaker percolate in successive portions of 200 Cc. each. Moisten the third portion of the drug (200 Gm.) with a sufficient quantity of the percolate collected in the preceding operation immediately after the reserved portion, to render it evenly and distinctly damp and to maintain it so after macerating 6 hours in a tightly covered container. Then pack it in a cylindrical percolator and macerate and percolate in the same manner, using as menstruum the several portions of percolate from the preceding operation in the order in which they have been collected and, if this be insufficient, follow with more of the original menstruum. Collect 500 Cc. of percolate and mix this with the two portions previously reserved so as to make 1000 Cc. of finished fluidextract. When Type Process C is directed for fluidextracts which are adjusted by assay to a definite alkaloidal standard, collect only 420 Cc. of percolate from the third portion of drug instead of the 500 Cc. directed in the Process.

Mix this percolate with the two portions previously reserved, assay a sample of the mixture and then adjust its volume, by the addition of the menstruum directed, so that each 100 Cc. of finished fluidextract will contain the prescribed amount of alkaloid.

Type Process D.—To 1000 Gm. of the ground drug add 5000 Cc. of boiling water, mix thoroughly and allow to macerate in a covered container for 2 hours in a warm place. Then transfer the moist drug to a tinned or enameled metallic percolator and allow percolation to proceed, gradually adding boiling water until the drug is practically exhausted. Evaporate the percolate on a water-bath or steam-bath to the volume specified and when cold add the alcohol directed and mix thoroughly. In the preparation of fluidextracts by either Process A, B, or C, the rate of percolation must be carefully controlled and for the quantities directed in the formulas of the Pharmacopœia, the flow should not exceed ten drops per minute until the reserved percolate is collected and 20 drops per minute thereafter. With careful percolation, most drugs will be practically extracted when 3000 Cc. of percolate have been obtained from each 1000 Gm. of the drug. Fluidextracts should be kept in tightly-stoppered containers for one month and then, if perfectly clear, stored in amber-colored bottles protected from sunlight and extremes of temperature. If sedimentation has occurred, the clear portion should be decanted, the remainder filtered and both liquids thoroughly mixed before storing. The quantity of alcohol in finished fluidextracts is less than the amount of alcohol in the menstrua employed, this is due to loss by evaporation during manufacture, variations in the amount of water in air-dried drugs and the absorption of moisture from the air, hence if the percentage of alcohol in the finished product is desired, it may be determined by the process for Alcohol Determination.

Fluidextractum Aconiti.—Powder changed from No. 60 to No. 40. Prepare by Type Process C, modified as directed for alkaloidal drugs. Menstruum: Alcohol 3 volumes and water 1 volume.

Fluidextractum Apocyni.—Powder changed from No. 60 to No. 30. Prepare by Type Process B. Menstruum I: Glycerin 100 Cc., alcohol 600 Cc., and water 300 Cc. Menstruum II: Alcohol 3 volumes, and water 2 volumes.

Fluidextractum Aromaticum.—Aromatic Powder 1000 Gm. Prepare by Type Process C. Menstruum: Alcohol.

Fluidextractum Aurantii Amari.—Powder changed from No. 40 to No. 20. Prepare by Type Process C. Menstruum: Alcohol 3 volumes and water 1 volume. Former menstruum: Alcohol 2 volumes and water 1 volume.

Fluidextractum Belladonnæ Radicis.—Powder changed from No. 60 to No. 40. Prepare by Type Process A, modified for alkaloidal drugs. Reserve the first 800 Cc. of percolate instead of 850 Cc., as there directed. Menstruum: Alcohol 5 volumes and water 1 volume. Former menstruum: Alcohol 4 volumes and water 1 volume.

Fluidextractum Buchu.—Powder changed from No. 60 to No. 40. Prepare by Type Process A. Menstruum: alcohol. Former menstruum: alcohol 3 volumes and water 1 volume.

Fluidextractum Cannabis Indicæ.—Prepare by Type Process A. Menstruum, alcohol.

Fluidextractum Cascaræ Sagradæ.—Prepare by Type Process D; evaporate to 750 Cc. and add 250 Cc. of alcohol. Former menstruum: alcohol 2 volumes and water 4 volumes.

Fluidextractum Cimicifugæ.—Powder changed from No. 60 to No. 40. Prepare by Type Process A. Menstruum: alcohol.

Fluidextractum Cinchonæ.—Powder changed from No. 60 to No. 40. Prepare by Type Process B, modified for alkaloidal drugs. Menstruum I: glycerin 100 Cc., diluted hydrochloric acid 100 Cc., and alcohol 800 Cc. Menstruum II: alcohol 4 volumes and water 1 volume. Former menstruum I: glycerin 100 Cc., alcohol 800 Cc. and water 100 Cc.

Fluidextractum Colchici Seminis.—Powder changed from No. 50 to No. 40. Remove the fat by percolation with purified petroleum benzin and then proceed by Type Process A, modified for alkaloidal drugs. Menstruum: alcohol 2 volumes and water 1 volume.

Fluidextractum Digitalis.—Powder changed from No. 60 to No. 30. Prepare by Type Process A. Menstruum: alcohol 5 volumes and water 1 volume. Former menstruum: diluted alcohol.

Fluidextractum Ergotæ.—Powder changed from No. 60 to No. 40. Prepare by Type Process B. Menstruum I: hydrochloric acid 20 Cc. and diluted alcohol 980 Cc. Menstruum II: diluted alcohol. Former menstruum I: acetic acid 20 Cc. and diluted alcohol 980 Cc.

Fluidextractum Eriodictyi.—Powder changed from No. 60 to No. 30. Prepare by Type Process A, reserving the first 800 Cc. of percolate instead of 850 Cc. as there directed. Menstruum: alcohol 4 volumes and water 1 volume.

Fluidextractum Eucalypti.—Powder changed from No. 40 to No. 30. Prepare by Type Process A, reserving the first 800 Cc. of percolate instead of 850 Cc. as there directed. Menstruum: alcohol 3 volumes and water 1 volume.

Fluidextractum Gelsemii.—Powder changed from No. 60 to No. 40. Prepare by Type Process A. Menstruum: alcohol 4 volumes and water 1 volume. Former menstruum: alcohol.

Fluidextractum Gentianæ.—Prepare by Type Process A. Menstruum: diluted alcohol.

Fluidextractum Glycyrrhizæ.—New process: Practically exhaust the Glycyrrhiza with a menstruum made in the proportion of ammonia water, 1 volume and chloroform water, 9 volumes, after moistening and macerating 48 hours. Reserve the first 500 Cc. of percolate, evaporate the remainder on a water-bath to a soft extract, dissolve it in the reserved portion, add water to make 750 Cc. and a few drops of ammonia water, if necessary, for solution. Then gradually add 250 Cc. of alcohol, allow it to stand for 7 days, decant the clear liquid, filter the remainder and wash the filter with a mixture of alcohol, 1 volume, and water, 3 volumes, to make 1000 Cc.

Fluidextractum Granati.—Prepare by Type Process B. Menstruum I:

glycerin 100 Cc., alcohol 500 Cc. and water 400 Cc. Menstruum II: diluted alcohol. Former menstruum I: glycerin 100 Cc. and diluted alcohol 900 Cc.

Fluidextractum Grindeliæ.—Prepare by Type Process A. Menstruum: alcohol 3 volumes and water I volume.

Fluidextractum Guaranæ.—Prepare by Type Process A, modified for alkaloidal drugs. Reserve the first 800 Cc. of percolate instead 850 Cc. as there directed. Menstruum: alcohol 3 volumes and water I volume. Former menstruum: diluted alcohol.

Fluidextractum Hydrastis.—Powder changed from No. 60 to No. 40. Prepare by Type Process B, modified for alkaloidal assay. Reserve the first 750 Cc. of percolate instead of 850 Cc. as there directed. Menstruum I: glycerin 100 Cc., alcohol 600 Cc. and water 200 Cc. Menstruum II: alcohol 2 volumes and water 1 volume. Former menstruum I: glycerin 100 Cc., alcohol 600 Cc. and water 300 Cc.

Fluidextractum Hyoscyami.—Powder changed from No. 60 to No. 40. Prepare by Type Process A, modified for alkaloidal drugs. Menstruum: alcohol 3 volumes and water 1 volume. Former menstruum: alcohol 2 volumes and water 1 volume.

Fluidextractum Ipecacuanhæ.—Powder changed from No. 80 to No. 60. Prepare by Type Process B, modified for alkaloidal drugs. Reserve the first 800 Cc. of percolate instead of 850 Cc. as there directed. Menstruum I: diluted hydrochloric acid 100 Cc., alcohol 200 Cc., and water 200 Cc. Menstruum II: alcohol 2 volumes and water 3 volumes. Former menstruum: alcohol 3 volumes and water I volume.

Fluidextractum Lobeliæ.—Powder changed from No. 50 to No. 30. Prepare by Type Process B. Menstruum I: acetic acid 50 Cc., alcohol 500 Cc., and water 450 Cc. Menstruum II: diluted alcohol. Former menstruum: acetic acid 275 volumes and water 725 volumes.

Fluidextractum Nucis Vomicæ.—Prepare by Type Process A, modified for alkaloidal drugs. Reserve the first 800 Cc. of percolate instead of 850 Cc. as there directed. Menstruum: alcohol 3 volumes and water 1 volume. Former menstruum I: acetic acid 50 Cc., alcohol 750 Cc. and water 250 Cc. Former menstruum II: alcohol 3 volumes and water 1 volume.

Fluidextractum Pareiræ.—Powder changed from No. 40 to No. 30. Prepare by Type Process A. Menstruum I: diluted alcohol. Former menstruum I: glycerin 100 Cc., alcohol 600 Cc. and water 300 Cc. Former menstruum II: alcohol 3 volumes and water 2 volumes.

Fluidextractum Pilocarpi.—Powder changed from No. 40 to No. 30. Prepare by Type Process A, modified for alkaloidal drugs. Reserve the first 800 Cc. of percolate instead of 850 Cc. as there directed. Menstruum: alcohol 2 volumes and water 1 volume. Former menstruum: diluted alcohol.

Fluidextractum Podophyli.—Prepare by Type Process A. Menstruum: alcohol. Former menstruum: alcohol 4 volumes and water 1 volume.

Fluidextractum Rhei.—Prepare by Type Process A. Menstruum: alcohol 4 volumes and water 1 volume.

Fluidextractum Sabal.—Sabal, in No. 20 powder. Prepare by Type Process A. Menstruum: alcohol 4 volumes and water 1 volume.

Fluidextractum Sarsaparillæ.—Powder changed from No. 30 to No. 20. Prepare by Type Process A. Menstruum: diluted alcohol. Former menstruum: alcohol 1 volume and water 2 volumes.

Fluidextractum Sarsaparillæ Compositum.—Sarsaparilla powder changed from No. 30 to No. 20. Glycyrrhiza powder changed from No. 30 to No. 20. Mix the powders and prepare by Type Process B. Menstruum I: glycerin 100 Cc., alcohol 500 Cc. and water 400 Cc. Menstruum II: diluted alcohol. Former menstruum I: glycerin 100 Cc. and diluted alcohol 900 Cc.

Fluidextractum Senegæ.—Powder changed from No. 40 to No. 30. Practically exhaust the Senega with a menstruum made in the proportion of alcohol, 2 volumes, and water, 1 volume, after moistening and macerating the drug for 48 hours. Reserve the first 800 Cc. of percolate, evaporate the remainder to a soft extract, and dissolve this in the reserve. Add ammonia water until the liquid is faintly alkaline and then enough of the menstruum to make 1000 Cc. Former menstruum I: solution of potassium hydroxide 30 Cc., alcohol 600 Cc. and water 300 Cc. Former menstruum II: alcohol 2 volumes and water 1 volume.

Fluidextractum Sennæ.—Prepare by Type Process A, reserving the first 800 Cc. of percolate instead of 850 Cc. as there directed. Menstruum: alcohol 1 volume and water 2 volumes. Former process: The drug was exhausted with alcohol, the percolate being discarded. The fluidextract was then prepared with a menstruum of diluted alcohol.

Fluidextractum Spigeliæ.—Prepare by Type Process A. Menstruum: diluted alcohol.

Fluidextractum Staphisagriæ.—Powder changed from No. 40 to No. 20. Prepare by Type Process A. Menstruum: alcohol. Former menstruum: alcohol 4 volumes and water 1 volume. Remove the oil from the freshly prepared fluidextract by addiing 20 Gm. of purified talc and filtering the mixture.

Fluidextractum Stillingiæ.—Powder changed from No. 40 to No. 30. Prepare by Type Process A. Menstruum: diluted alcohol.

Fluidextractum Sumbul.—Prepare by Type Process A. Menstruum: alcohol 4 volumes and water 1 volume. Former menstruum: alcohol 3 volumes and water 1 volume.

Fluidextractum Taraxaci.—Prepare by Type Process B. Menstruum I: glycerin 100 Cc., alcohol 500 Cc. and water 400 Cc. Menstruum II: diluted alcohol. Former process: Menstruum: diluted alcohol; 5 percent. of solution of sodium hydroxide was added to complete the fluidextract.

Fluidextractum Tritici.—Prepare by Type Process D. Evaporate to 800 Cc. and add 200 Cc. of alcohol.

Fluidextractum Uvæ Ursi.—Prepare by Type Process B, reserving the first 800 Cc. of percolate instead of 850 Cc. as there directed. Menstruum I: glycerin 100 Cc., alcohol 300 Cc. and water 500 Cc. Menstruum II: alcohol 1 volume and water 2 volumes. Former menstruum I: glycerin 300 Cc., alcohol

200 Cc., water 500 Cc. Former menstruum II: alcohol 2 volumes and water 5 volumes.

Fluidextractum Veratri.—Powder changed from No. 60 to No. 40. Prepare by Type Process A. Menstruum: alcohol.

Fluidextractum Viburni Prunifolii.—Powder changed from No. 40 to No. 30. Prepare by Type Process A. Menstruum: alcohol 2 volumes, water 1 volume.

Fluidextractum Xanthoxyli.—Powder changed from No. 40 to No. 30. Prepare by Type Process A. Menstruum: alcohol 3 volumes and water 1 volume.

Fluidextractum Zingiberis.—Powder changed from No. 50 to No. 40. Prepare by Type A. Menstruum: alcohol.

RESINS.

Resina Podophylli.—Added test: On adding 0.4 Gm. of Resin of Podophyllum to 3 Cc. of 60 percent. alcohol, introducing 0.5 Cc. of potassium hydroxide T. S., and gently shaking the mixture, it should not gelatinize (difference from Resin of Podophyllum obtained from P. Emodi). Ash not exceeding 1.5 percent. changed from "1 percent."

Resina Jalapæ.—Modified tests: "Not more than 12 percent. of Resin of Jalap should be soluble in ether," changed from "15 percent." Added test: The requirement that the ammonia water solution should not become gelatinous on standing has been added to the test for rosin, guaiac and other resins. Melting point omitted. Added tests: Water triturated with the Resin should not have a bitter taste (aloin). Dissolve 0.02 Gm. of Jalap in 2 Cc. of glacial acetic acid and add a few drops of sulphuric acid; the mixture should not acquire a pink color (resin). Modified test: Shake 0.02 Gm. of Resin of Jalap with 5 Cc. of ether, filter and evaporate the ethereal solution on a piece of filter paper. No greenish-blue color should be produced by the addition of a drop of ferric chloride T. S. to the filter paper (guaiac). Test for limit of saponifiable substances omitted.

Resina Scammonii.—Modified tests: "Not less than 95 percent. should be soluble in ether (distinction from resin of jalap and resin of false scammony)," changed from "almost completely soluble in ether and chloroform." When triturated with water, it does not alone form an emulsion. Percolate Scammony Root, in No. 30 powder, until the percolate produces only a slight turbidity when dropped into water. Distil the alcohol from the percolate, reducing it to the consistence of thin syrup, and pour it slowly with constant stirring into 1000 Cc. of hot water. Decant the supernatant liquid, wash the precipitated Resin twice, by decantation, with fresh portions of 1000 Cc. each of hot water and dry the Resin on a water-bath. Added tests: Its solution in alcohol does not give a blue color with ferric chloride T. S. or with solution of hydrogen dioxide (guaiac). Sulphuric acid should not gradually turn red when stirred in a porcelain dish with an equal weight of Resin of Scammony (rosin).

TINCTURES.

Tinctura Aconiti.—Powder changed from No. 60 to No. 40. Continue the operation until the percolate measures 950 Cc., assay it, and add enough men-

struum to make the finished Tincture conform to the required alkaloidal standard. The former Tincture was percolated to 1000 Cc. without the adjustment of the final volume by assay.

Tinctura Aloes.—"Purified Aloes" changed to "Socotrine Aloes."

Tinctura Arnicæ.—Moisten 200 Gm. of Arnica with 500 Cc. of diluted alcohol, and, without pressing the powder, allow it to stand in a well covered percolator for 24 hours, then pack it with moderate pressure and allow the percolation to proceed slowly, adding diluted alcohol until the percolate measures 250 Cc. Now stop the flow, macerate the drug for an additional twenty-four hours, and then continue the percolation until the total percolate measures 500 Cc. Again interrupt percolation, macerate the drug for another twelve hours and afterwards collect an additional 250 Cc. of percolate. Again macerate the drug for twelve hours and then percolate slowly, pouring on sufficient diluted alcohol to make 1000 Cc. of Tincture. The former process required maceration, expression and filtration.

Tinctura Asafœtidæ.—No change.

Tinctura Aurantii Amari.—No change

Tinctura Aurantii Dulcis.—The Sweet Orange Peel is to be "grated from the fresh fruit" instead of "in thin shavings and cut into narrow shreds from the fresh fruit."

Tinctura Balladonnæ Foliorum.—Continue the operation until the percolate measures 950 Cc., assay it, and add enough diluted alcohol to make the finished Tincture conform to the required alkaloidal standard. The former Tincture was percolated to 1000 Cc. without the adjustment of the final volume by assay.

..*Tinctura Benzoini.*—No change.

Tinctura Benzoini Composita.—"Purified Aloes" changed to "Socotrine Aloes."

..*Tinctura Calumbæ.*—No change.

Tinctura Cannabis Indicæ.—No change.

Tinctura Capsici.—No change.

Tinctura Cardamomi.—150 Gm. of Cardamom Seed replaces 200 Gm. of Cardamon (U. S. P. VIII, fruits and seeds).

Tinctura Cardamomi Composita.—20 Gm. of Cardamon Seed replaces 250 Gm. of Cardamom (U. S. P. VIII, fruits and seeds).

Tinctura Cinnamomi.—Use the proportion of glycerin, alcohol and water as a menstruum throughout, which was used in the former process for the first 1000 Cc. There the percolation was completed with a menstruum of alcohol 675 volumes, and water 250 volumes.

Tinctura Colchici Seminis.—Continue the operation until the percolate measures 950 Cc., assay it, and add enough menstruum to make the finished Tincture conform to the required alkaloidal standard. The former Tincture was percolated to 1000 Cc. without the adjustment of the final volume by assay.

Tinctura Ferri Chloridi.—Rubric changed from "not less than 13.28 percent. of the anhydrous salt, corresponding to 4.6 (4.58) percent. of metallic iron" to

"not less than 13 percent. of anhydrous Ferric Chloride corresponding to 4.48 percent. of iron." Specific gravity changed from "about 1.005" to "about 1.000" at 25° C. Modified assay: Weigh accurately about 5 Gm. of Tincture of Ferric Chloride in a tared weighing-bottle, and evaporate it to dryness in a porcelain dish on a water-bath, add 2 Cc. of hydrochloric acid and 5 Cc. of solution of hydrogen dioxide to the residue and again evaporate the mixture to dryness. Dissolve this residue in 25 Cc. of distilled water, mix it with 3 Cc. of hydrochloric acid and about 1 Gm. of potassium iodide in a 250 Cc. glass-stoppered flask, and allow the mixture to stand for 45 minutes at a temperature of 40° C. The resulting solution, when cooled, diluted with 100 Cc. of distilled water and titrated with tenth-normal sodium thiosulphate V. S., starch T. S. being used as indicator, should show not less than 4.48 percent. of iron.

Tinctura Gambir Composita.—No change.

Tinctura Gelsemii.—No change.

Tinctura Gentianæ Composita.—Cardamom Seed replaces Cardamom (U. S. P. VIII, fruits and seeds). Menstruum I: glycerin 100 Cc., alcohol 500 Cc. and water 400 Cc. Menstruum II: diluted alcohol. Former menstruum alcohol 3 volumes and water 2 volumes.

Tinctura Guaiaci.—No change.

Tinctura Guaiaci Ammoniata.—No change.

Tinctura Hydrastis.—Menstruum changed from alcohol 65 volumes and water 35 volumes to alcohol 2 volumes and water 1 volume. Continue the operation until the percolate measures 950 Cc., assay it, and add enough menstruum to make the finished Tincture conform to the required alkaloidal standard. The former Tincture was percolated to 1000 Cc. without the adjustment of the final volume by assay.

Tinctura Hyoscyami.—Continue the operation until the percolate measures 950 Cc., assay it, and add enough diluted alcohol to make the finished Tincture conform to the required alkaloidal standard. The former Tincture was percolated to 1000 Cc. without the adjustment of the final volume by assay.

Tinctura Iodi.—Modified assay: Evaporate 10 Cc. of Tincture of Iodine in a tared, porcelain dish on a water-bath and gently heat the residue over a Bunsen flame to volatilize the Iodine; it should leave a residue weighing not less than 0.45 Gm., which should correspond to the indentity tests given under Potassii Iodidum. Mix 5 Cc. of Tincture of Iodine with 25 Cc. of distilled water and titrate it with tenth-normal sodium thiosulphate V. S., starch T. S. being used as indicator; it should show not less than 6.75 Gm. nor more than 7.25 Gm. of Iodine in each 100 Cc. of Tincture.

Tinctura Kino.—Pour 500 Cc. of boiling water on 100 Gm. of Kino in a capacious flask, agitate the mixture thoroughly and then heat it on a water-bath, containing boiling water, for one hour, shaking it frequently. Cool, add enough recently boiled water to make 500 Cc. and then add 500 Cc. of alcohol. Stopper the flask, set it aside in a cool place for 24 hours and decant the mixture through cheese cloth. Preserve it in a cool and dark place, in small bottles, tightly

corked. Former Tincture contained 5 Gm. of Kino for 100 Cc. Former menstruum contained 15 percent. of glycerin and 65 percent. of alcohol by volume.

Tinctura Lactucarii.—No change.

Tinctura Lavandulæ Composita.—No change.

Tinctura Limonis Corticis.—The Lemon Peel is to be "grated from the fresh fruit" instead of "in thin shavings and cut into narrow shreds from the fresh fruit."

Tinctura Lobeliæ.—No change

Tinctura Moschi.—No change.

Tinctura Myrrhæ.—No change.

Tinctura Nucis Vomicæ.—Percolate Nux Vomica in No. 40 powder, with a menstruum of alcohol 3 volumes and water 1 volume until the percolate measures 950 Cc., assay it, and add enough menstruum to make the finished Tincture conform to the required alkaloidal standard. The former Tincture was prepared by dissolving 20 Gm. of the Extract in enough of a mixture of alcohol 3 volumes and water 1 volume to make 1000 Cc. without the adjustment of the final volume by assay.

Tinctura Opii.—Continue the operation until the percolate measures 950 Cc., assay it, and add enough menstruum to make the finished Tincture conform to the required alkaloidal standard. The former Tincture was percolated to 1000 Cc. without the adjustment of the final volume by assay.

Tinctura Opii Camphorata.—No change.

Tinctura Opii Deodorati.—Wash the residue on the filter with enough water to make the filtrate measure 950 Cc., assay it, and add enough water to make the finished Tincture conform to the required alkaloidal standard. The residue on the filter was washed with enough water to make 1000 Cc. without the adjustment of the final volume by assay.

Tinctura Physostigmatis.—Continue the operation until the percolate measures 950 Cc., assay it, and add enough alcohol to make the finished Tincture conform to the required alkaloidal standard. The former Tincture was percolated to 1000 Cc. without the adjustment of the final volume by assay.

Tinctura Pyrethri.—No change.

Tinctura Quassiæ.—Menstruum: alcohol 1 volume and water 2 volumes. Former menstruum: alcohol 35 volumes and water 65 volumes.

Tinctura Rhei.—30 Gm. of Cardamom Seed replaces 40 Gm. of Cardamom (U. S. P. VIII, fruits and seeds). Menstruum I: glycerin 100 Cc., alcohol 500 Cc., and water 400 Cc. Menstruum II: diluted alcohol. Former Menstruum I: no change. Former Menstruum II: alcohol 5 volumes and water 4 volumes.

Tinctura Rhei Aromatica.—Menstruum I: glycerin 100 Cc., alcohol 500 Cc., and water 400 Cc. Menstruum II: diluted alcohol. Former Menstruum I: no change. Former Menstruum II: alcohol 5 volumes and water 4 volumes.

Tinctura Scillæ.—Prepared by percolation, changed from maceration.

Tinctura Stramonii.—Continue the operation until the percolate measures 950 Cc., assay it, and add enough diluted alcohol to make the finished Tincture conform to the required alkaloidal standard. The former Tincture was percolated to 1000 Cc. without the adjustment of the final volume by assay.

Tinctura Strophanthi.—Powder changed from No. 60 to No. 40. Percolate the 100 Gm. of Strophanthus with purified petroleum benzin until the percolate no longer leaves a greasy stain when evaporated from filter paper. Then dry the drug so treated and afterwards percolate it with a menstruum of alcohol to obtain 1000 Cc. of Tincture. The former Tincture was prepared by percolating with a menstruum of alcohol 65 volumes and water 35 volumes to make 1000 Cc. of Tincture.

Tinctura Tolutana.—No change.

Tinctura Valerianæ.—Powder changed from No. 60 to No. 40.

Tinctura Valerianæ Ammoniata.—Powder changed from No. 60 to No. 40.

Tinctura Vanillæ.—Macerate 100 Gm. of Vanilla, cut into small pieces, with 500 Cc. of alcohol in a stoppered container, in a moderately warm place, for 2 days, with frequent agitation; then transfer it to a plain filter and reserve the filtered liquid. Dry the drug on the filter by exposure to air until all of the alcohol has evaporated, then grind the Vanilla and 200 Gm. of coarse sugar to a uniform powder, pack this in a percolator and slowly percolate it first with a mixture of the reserved filtrate and an equal volume of water and then with sufficient diluted alcohol to make 1000 Cc. of Tincture. Former Menstruum: alcohol 65 volumes and water 35 volumes. Formerly prepared by macerating 100 Gm. of Vanilla in 500 Cc. of the menstruum during 12 hours, draining off the liquid, reserving it and beating the Vanilla and 200 Gm. of sugar in a mortar to a uniform powder. Then percolate the mixture with the reserved liquid and enough of the menstruum to make 1000 Cc.

Tinctura Veratri.—"Veratrum" (U. S. P. VIII, Veratrum Viride or Veratrum album) changed to Veratrum Viride.

Tinctura Zingiberis.—Powder changed from No. 50 to No. 30. Added tests: Tincture of Ginger should yield not less than 90 percent. of absolute alcohol by volume when tested as described under Alcohol Determination. Evaporate 10 Gm. of Tincture of Ginger to dryness, in a tared dish on a water-bath; the yield of residue should not exceed 2 percent. When treated with 20 Cc. of cold distilled water, not more than 15 percent. of this residue should dissolve. Evaporate 10 Cc. of Tincture of Ginger to dryness in a small flask. Add 5 Cc. of half-normal alcoholic potassium hydroxide V. S. and boil the mixture gently for 30 minutes under a reflux condenser. Remove the condenser and evaporate the alcohol on a water-bath. Then add 50 Cc. of distilled water to dissolve the residue, transfer this aqueous solution to a separatory funnel and shake it out with 25 Cc. of ether. Evaporate the separated ether solution spontaneously by adding it, a few drops at a time, to the center of a watch glass and cautiously apply the tip of the tongue to the dry residue. The taste should be slightly camphor-

aceous but not sharp or biting-pungent (capsicum or similar pungent substitute for ginger).

MISCELLANEOUS GALENICALS.

No material change to be made in the Eighth Revision text for the following articles:

Acetum Scillæ
Emulsum Amygdalæ
Emulsum Asafœtidæ
Gelatinum Glycerinatum
Glyceritum Amyli
Glyceritum Boroglycerini
Glyceritum Phenolis
Infusum Sennæ Compositum
Linimentum Belladonnæ
Linimentum Calcis
Linimentum Chloroformi
Massa Ferri Carbonatis
Mistura Cretæ
Mucilago Tragacanthæ
Oleoresina Cubebæ
Pilulæ Aloes
Pilulæ Asafœtidæ
Pilulæ Catharticæ Compositæ
Pilulæ Ferri Carbonatis
Pilulæ Ferri Iodidi
Pilulæ Phosphori
Pilulæ Rhei Compositæ
Potassii Citras Effervescens
Pulvis Cretæ Compositus
Pulvis Effervescens Compositus
Sodii Phosphas Effervescens
Triturationes
Trituratio Elaterini

Caffeina Citrata Effervescens.—No change in formula and process. Rubric added: It should contain not less than 1.9 percent. of anhydrous Caffeine, as determined by the method given below. Assay: Dissolve about 5 Gm. of Effervescent Citrated Caffeine, accurately weighed, in 10 Cc. of hot distilled water. When effervescence has ceased, add an excess of sodium hydroxide T. S., cool the mixture and shake it in a separator with three successive portions of 20 Cc., 10 Cc. and 5 Cc., respectively, of chloroform, or more if necessary to complete the extraction. Evaporate the combined chloroform extracts on a water-bath and dry the residue to a constant weight at 80° C. The weight obtained is that of the anhydrous Caffeine in the weight of Effervescent Citrated Caffeine taken. The Caffeine so obtained should respond to the identity tests and have the melting point given under Caffeina.

Collodium.—No change in formula. Modified directions: Add the alcohol to the pyroxylin in a suitable bottle, shake the mixture thoroughly, then introduce the ether, and again shake the mixture until the pyroxlin is dissolved. Formerly the ether was added to the pyroxylin, the mixture allowed to stand 15 minutes, the alcohol added and the bottle shaken until solution resulted. Added description and tests: A clear, or slightly opalescent, syrupy liquid; colorless, or slightly yellowish; having the odor of ether and highly inflammable. Exposed to the air in a thin layer it leaves a transparent, tenacious film. Specific gravity 0.765 to 0.775 at 25° C. When mixed with an equal volume of distilled water, a viscid, stringy mass separates; the mixture should not show an acid reaction with litmus. Assay: Weigh accurately about 10 Cc. of Collodion is a well-stoppered flask, warm it on a water-bath and add 10 Cc. of distilled water, drop by drop, with constant stirring. Evaporate the mixture on a water-bath and dry the residue to constant weight at 110° C. The pyroxylin so obtained should correspond to

not less than 5.1 percent. of the Collodion taken, equal to about 4 Gm. of pyroxylin in 100 Cc. of Collodion at the standard temperature. The pyroxylin obtained should burn rapidly, with a yellow flame.

Collodium Cantharidatum.—No change in formula. No material change in directions.

Decocta.—Added directions: "Decoctions shall be freshly prepared from the drug, etc."

Emulsum Olei Morrhuæ.—No change in formula. No material change in directions.

Emulsum Olei Terebinthinæ.—New formula. Rectified Oil of Turpentine 15 Cc.; Expressed Oil of Almond; 5 Cc.; Syrup, 25 Cc.; Acacia, in fine powder, 10 Gm.; Water, a sufficient quantity to make 100 Cc. Mix the Rectified Oil of Turpentine with the Expressed Oil of Almond; rub the Acacia, contained in a dry mortar, with the oils until uniformly mixed; then add at once 15 Cc. of water and triturate lightly and rapidly until a thick homogeneous emulsion is produced; to this add the Syrup, with enough water to make the product measure 100 Cc. and mix thoroughly.

Glyceritum Acidi Tannici.—No change in formula. Modified directions: Weigh the glycerin into a suitable tared, wide-mouthed bottle, place it in a water-bath of cold water and apply heat until the water boils for a few minutes. Discontinue the heat, add the Tannic Acid to the hot glycerin in small, successive portions, and agitate the mixture until the Tannic Acid is dissolved. Former directions required trituration of the Tannic Acid with glycerin, followed by heating in a dish on a water-bath until dissolved.

Infusa.—Added directions: "Infusions shall be freshly prepared from the drug, etc."

Infusum Digitalis.—Added requirement: "Infusion of Digitalis should be freshly prepared."

Linimentum Ammoniæ.—Ammonia Water, 250 Cc., Oil of Sesamum, 750 Cc.; to make 1000 Cc. Agitate the Ammonia Water with an equal volume of the Oil until a uniform mixture is obtained, then gradually add the remainder of the Oil and mix well. Ammonia Water changed from 350 Cc. to 250 Cc. Oil of Sesamum replaces the alcohol, cotton seed oil and oleic acid.

Linimentum Camphoræ.—No change in formula. The directions require to heat the Oil in a suitable flask or bottle on a water-bath, add the Camphor, stopper the container and dissolve the Camphor by agitation without further heat. The Camphor was formerly dissolved in the Oil in a loosely-stoppered flask, on a water-bath with occasional agitation.

Linimentum Saponis Mollis.—No change in formula. No material change in directions.

Linimentum Terebinthinæ.—Added directions: "If thickened by cold, the Liniment should be warmed sufficiently to render it fluid before dispensing, otherwise no change in formula or directions.

Massa Hydrargyri.—The Mercury is added to 1 Gm. of Oleate of Mercury in a warm mortar, a small amount of Honey of Rose added and the Mercury extin-

guished in the mixture. The other ingredients are subsequently incorporated to make a uniform product. The Oleate of Mercury was not in the formula of the Eighth Revision.

Mistura Glycyrrhizæ Composita.—No change in formula. The Extract and Acacia are directed to be dissolved in warm water; the former text did not specify that it should be warm.

Mucilago Acaciæ.—The amount of Acacia is changed from 340 Gm. to 350 Gm., the lime water omitted and distilled water directed to make 1000 Gm. No material change in the directions.

The former solvent acetone is changed to ether in the following:

Oleoresina Aspidii	Oleoresina Zingiberis
Oleoresina Capsici	Oleoresina Piperis

Pulvis Aromaticus.—No change in formula or directions. Added microscopic descriptions: Light reddish-brown; with a strong, distinct, aromatic odor; consisting chiefly of the characteristic starch grains of Ginger, being ellipsoidal or ovoid, slightly beaked and from 0.005 to 0.060 mm. in diameter; numerous yellowish-brown, brownish-red and occasional blackish fragments, the cellular structure of which is not distinct; occasional stone cells, the lumen being filled usually with a reddish-brown amorphous substance or containing air; occasional fragments with sclerenchymatous fibers; calcium oxalate crystals; short raphides few.

Pulvis Glycyrrhizæ Compositus.—No change in formula or directions. Added microscopic description. Greenish-yellow to greenish-brown with an odor suggesting that of fennel; when mounted in water or hydrated chloral T. S. and examined under the microscope Compound Powder of Glychrrhiza shows fragments of Glycyrrhiza with their characteristic yellow fibers associated with crystal-fibers, large tracheæ with elliptical, bordered pores and cells containing numerous, spherical starch grains varying from 0.002 to 0.020 mm. in diameter; also fragments of Senna as shown by their characteristic, more or less bent, unicellular, non-glandular hairs from 0.100 to 0.350 mm. in length; fragments of epidermis with elliptical stomata and their 2 neighboring cells and fragments with crystal-fibers; upon the addition of potassium hydroxide T. S. to aqueous mounts of the powder, some of the fragments are immediately colored a yellowish-red, changing to a reddish-brown. Add 0.100 Gm. of Compound Powder of Glycyrrhiza to a test-tube, moisten it with 2 Cc. of alcohol and then add 10 Cc. of water and boil, allow it to cool and then filter, the filtrate should be of a pale yellowish-brown color, which changes immediately to a yellowish-red on the addition of a drop of potassium hydroxide T. S. Compound Powder of Glycyrrhiza should be free from an odor of hydrogen sulphide.

Pulvis Ipecacuanhæ et Opii.—No change in formula or directions. Added microscopic description: Grayish-white or very light brown; consisting mostly of coarse, angular, frequently more or less cone-shaped, colorless fragments from 0.030 to 0.400 mm. in length; very slowly soluble in water and hydrated chloral T. S., and which strongly polarize light with a strong display of colors (fragments of sugar of milk); numerous starch grains of Ipecac, their presence con-

firmed by the addition of iodine T. S., and varying from 0.003 to 0.017 mm. in diameter; occasional fragments of tracheids of Ipecac; and occasional fragments with the more or less tabular, characteristic stone cells of the capsules of the Opium Poppy, with their light brown, porous and strongly lignified walls.

Pulvis Jalapæ Compositus.—No change in formula or directions. Added microscopic description: Very light brown; consisting of numerous, sharp-angular, colorless fragments mostly somewhat rectangular and with straight edges varying from 0.030 to 0.300 mm. in length, slowly soluble in water or hydrated chloral T. S. and which strongly polarize light with a strong display of colors, (fragments of crystals of potassium bitartrate); numerous starch grains of Jalap, readily distinguished without the use of iodine T. S., usually single, occasionally 2- to 3-compound, and varying from 0.003 to 0.035 mm. in diameter; occasional fragments of laticiferous vessels and parenchyma with yellowish-brown walls, or tracheæ with bordered pores, and rosette aggregates of calcium oxalate from 0.010 to 0.035 mm. in diameter, that occur in Jalap.

Pulvis Rhei Compositus.—No change in formula or directions. Added microscopic descriptions: A pinkish-white, mobile powder, becoming darker on exposure to air; consisting of fine particles of magnesium oxide, numerous starch grains and characteristic fragments of vegetable tissues; starch grains of Ginger, more or less elliptical or ovoid, frequently with a prominent beak, from 0.005 to 0.060 mm. in diameter; starch grains of rhubarb, single or compound either spherical or polygonal, often with a central cleft, from 0.002 to 0.020 mm. in diameter; mounts made with hydrated chloral T. S. show a strong effervescence and more clearly, the fragments of reticulate trachea, the reddish-brown parenchyma of rhubarb with numerous small starch grains or rosette-aggregates of calcium oxalate, varying from 0.050 to 0.100 mm. in diameter; with solutions of the alkalies many of the fragments become of a deep red color.

Suppositoria.—Added general directions: If the process of cold compression is preferred, mix the medicinal substance in a suitable mortar with about an equal weight of grated Oil of Theobroma, as above directed, then thoroughly incorporate it with the remainder of the Oil of Theobroma, previously finely grated, chilling the mortar, if necessary, to preserve the pulverulent form of the mixture. Insert the powdered mass into the cylinder of an appropriate suppository compresser and by the use of this apparatus prepare the desired number of compressed suppositories.

Suppositoria Glycerini.—No change in formula. Add to the directions that the dish in which the reaction occurs be thoroughly immersed in the boiling water of the bath with the contents protected as much as possible from the steam.

A COLORIMETRIC METHOD FOR THE DETERMINATION OF CITRAL IN EXTRACTS OF LEMON AND IN OIL OF LEMON.

L. D. LITTLE, PH. G., STRYKER, OHIO.

There have been various methods suggested and worked out for the assay of Citral in Extract of Lemon and for Oil of Lemon, gravimetric as well as colorimetric. Of the methods so far suggested, the Hydroxylamine, Fuchsin Sulphite, Sulphanilic Acid, Phenylhydrazine, Metaphenylenediamine methods, all seem to have some objectionable or uncertain features which make them not uniform in results in the hands of many operators.

The Fuchsin Sulphite method of Dr. Chace, (Jour. Amer. Chem. Soc., 28, 1472, 1906), has received the most attention by chemists working with citral extracts.

The Metaphenylenediamine method of Mr. Hiltner, (Jour. Ind. & Eng. Chem, 1906), which is generally preferred at the present time has good features for convenience and rapidity in manipulation, and can be conducted at room temperature.

As is well known to chemists working with citral, it possesses the characteristics of the aldehydes, and as it combines with phenylhydrazine, with ammonia and with hydroxylamine, upon these all colorimetric methods have been based. The following have been suggested:

The fuchsin sulphite reagent which was primarily used for the determination of acetaldehyde in alcohol, etc.; and metaphenylenediamine hydrochloride which is used in the fuchsin method for the decomposition of acetaldehyde in the alcohol used in the Chace method; therefore the two methods may give higher results in an extract of lemon containing acetaldehyde, which would be calculated as citral, while with the diaminophenol hydrochloride reagent only the citral is estimated, as this compound does not react with acetaldehyde and, as far as I have been able to determine, does not react with other compounds present in oil of lemon, except that in the presence of citronellal a violet coloration is produced proportionate to the amount of citronellal present. Of the various reagents suggested for the colorimetric estimation of citral aldehyde they bear a similarity in containing an "amino" group which combines with the citral.

In phenylhydrazine C_6H_5, NH_2, NH, HCl we have one amino and one imino radical.

In fuchsin

$$OHC\begin{matrix}//(C_6H_4NH_2)_2\\ \diagdown C_6H_3MeNH_2, Cl\end{matrix}$$

we have three amino groups.

In metaphenylenediamine hydrochloride, $C_6H_4(NH_2)_2$, 2HCl there are two amino groups.

In hydroxylamine hydrochloride, NH_2, OH, HCl there is one amino group while in diaminophenol hydrochloride, $C_6H_3(NH_2)_2$ OH, HCl there are two

amino groups, which appear to combine readily with citral and evidently form a definite compound, the product of which I have not fully worked out but have under investigation.

The following colorimetric method I have used for the past year in making Citral determinations parallel with other methods, with concordant results.

The method is of easy manipulation and can be conducted at room temperature:

Reagent: Dissolve .200 gram diaminophenol hydrochloride, (commercially known as Amidol) in 100 cc. of 65 percent by volume alcohol, preferably distilled over potassium hydroxide. The use of aldehyde-free alcohol does not seem to make any difference in the results, as acetaldehyde has no apparent effect upon the reagent. I find in making a large number of assays for citral the use of Mallinckrodt's recently distilled absolute alcohol to be sufficiently exact, as the reagent remains clear and colorless for several hours. The reagent is very readily soluble in 65 percent alcohol.

Standard Citral Solution: A solution of pure citral in fifty percent alcohol, containing .001 gram per cc.

Solution of Extract of Lemon: Weigh any quantity of the extract for examination, 15 or 25 grams, and dilute to 30 or 50 cc. with 50 percent alcohol, if a terpeneless extract, making a 50 percent solution.

Manipulation: Similar to the Chace method, except that it can be conducted at room temperature.

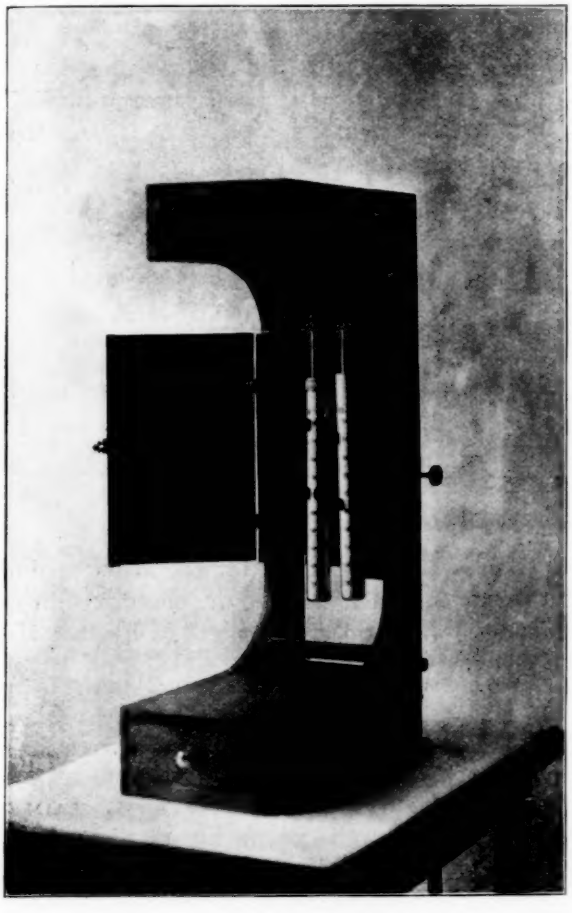
Place 2 cc. of the standard citral solution measured from an accurately graduated pipette, in a 250 mm. colorimeter tube, (using preferably an O. Schreiner colorimeter) add 20 cc. of 65 percent alcohol, and 15 cc. of diaminophenol reagent and make up to 50 cc. with 65 percent alcohol. Place 2 cc. of the extract in the other tube with 15 cc. of the reagent and make up to 50 cc. with 65 percent alcohol as before, mixing the contents of both tubes thoroughly and allowing both tubes to remain for 5 to 10 minutes at room temperature, when the maximum color is reached in both the citral tube and the extract under examination. The reading and calculation are made at once or a reading can be made at the expiration of fifteen or twenty minutes in duplicate. The calculation of percentage of citral content in the extract is made by placing the standard citral tube at the 30 mm. mark and adjusting the tube containing the extract under examination so that the two small disks of color as observed through the two immersion tubes are similar in tint.

Assuming that the extract tube was at 40, the calculation of percentage is made as follows: $30 \times 2 \div 40 = 0.150\%$.

The form of colorimeter which I have used is a modification of the O. Schreiner Colorimeter, which has some conveniences in manipulation over the ones obtainable from the instrument supply houses. The two immersion tubes are placed in the holders about 13/16 inch apart and adjusted parallel with each other, and the two mm. graduated tubes are attached to two movable slides at the back of the instrument, and movable upwards or downwards by a rack and pinion adjustment which moves them in a parallel position. In front of the

frame, covering the tubes while under observation, is a hinged front inclosing the tubes in a black box open at bottom, thus excluding all side lights or reflections.

The observation mirror at top instead of being made with a flat plane surface is divided in the center and mounted backwards at center, at an angle of about 3° or about 1/12 inch for each two -inch piece, making the mirror four inches in length, which converges the rays of light through the tubes and brings both images within the line of optical axis.



For the assay of oil of lemon the following is suggested as giving very good and comparative results. Dissolve 1 gram of the oil in sufficient 85% alcohol to make 20 cc. of solution and filter clear. Eighty-five percent alcohol will have about the same density as the oil. Make a 50% solution. Weigh out 15 grams and dilute to 30 cc. with 85% alcohol, or make a solution of 1 gram of the oil with sufficient 85% alcohol to make the volume 40 cc., and assay.

In the following tables I give the results of examination of both terpeneless extracts and extracts made from oil of lemon, covering a period of two years,

in parallel with Chace and the Hiltner methods and with diaminophenol hydrochloride:

TABLE No. 1.

		Chace Method.		Diaminophenol Method.
No.	1	Ext. Lemon	.196	.196% citral
"	2	"	.187	.200
"	3	"	.176	.176
"	4	"	.187	.176
"	5	"	.166	.166
"	6	"	.181	.181
"	7	"	.227	.232
"	8	Concentrated Ext. Lemon	.830	.835
"	9	"	.785	.830
"	10	"	.880	.880
"	11	"	.704	.748
"	12	"	.875	.875
"	13	"	.790	.770

TABLE No. 2.

		Hiltner Method.		Diaminophenol Method.
No.	1	Ext. Lemon	.176	.182% citral
"	2	"	.1304	.1428
"	3	"	.1668	.1714
"	4	"	.1578	.1578
"	5	"	.1394	.143
"	6	"	.105	.111

TABLE No. 3.

		Hiltner Method.		Diaminophenol Method.
No.	1	Oil Lemon	4.20%	4.28%
"	2	"	4.00	4.14
"	3	"	4.28	4.28
"	4	"	3.16	3.14
"	5	"	4.61	4.68

While extreme accuracy is not claimed for the above method it is submitted with the hope that it may be of assistance to the pharmacist or chemist in making a comparative estimate of value or citral content of Extract of Lemon or Oil of Lemon for which it is given.

THE DETECTION OF ADDED METHYL SALICYLATE.*

WITH SPECIAL REFERENCE TO A NEW COLOR TEST AND THE CLAIM OF UNITED STATES GOVERNMENT CHEMISTS TO HAVE DEVISED A METHOD.

The article which appeared in the Record of January, 1914, page 4, on the above subject has brought us so many inquiries and communications that we think it well to make further reference to the matter, especially as considerable interests are involved.

It will be recollected that it was claimed that the "specialists" of the Bureau of Chemistry are able to detect the addition of synthetically manufactured methyl salicylate in the natural product. We pointed out the importance of this, especially in view of the difficulties which previous workers had experienced in the task.

*Reprinted from Perfumery and Essential Oil Record, Feb., 1914, p. 60.

We are informed that all applications to the United States Department of Agriculture for particulars of the test have been met with the statement that the test used is under further investigation, and will be communicated by the Department in due course. We presume that there is some reticence, as the test has been used in connection with legal proceedings under the Food and Drugs Act.

We have been experimenting continuously since our last publication, and suggest that a test which may be eventually found to be useful is a color test, which so far as our observations have gone appears to be of some reliability. We have employed the test upon what we have every reason to believe to be true oil of Gaultheria procumbens, true oil of Betula lenta, oils, about which we have certain suspicions, and upon methyl salicylate. As, however, is usual with all color tests, they must be accepted with reserve, and it is absolutely essential that identical conditions should obtain in every test.

The application of the test as we have made it has been on the following lines:

"To five drops of the oil in a test tube add five drops of a 5 percent alcoholic solution of vanillin and 1 cc. of alcohol. Shake well and add 2 cc. of concentrated sulphuric acid and mix thoroughly."

The following table indicates the results of our examination of typical samples, which we have described above:

Oil of Gaultheria procumbens	Intense crimson
Oil of Betula lenta	Deep blood red
Doubtful (a)	Reddish brown
Doubtful (b)	Reddish brown
Methyl salicylate (synthetic)	Yellow

By this intensity of coloration there can be no question that one can see a difference between oils that are pure and oils that are grossly adulterated, but whether it can be made into a colorimetric test is, of course, difficult to say. One remembers only too well how that the intensity of color produced by the action of sulphuric acid on cod liver oil, namely, the dark violet coloration, was used by a public analyst as an indication of the freedom or otherwise of the cod liver oil from certain other added fish oils.

We make no further comment until we are favored with full particulars of the "official" test, but, at the same time, one can see that it is important that a publication should be made as promptly as possible, especially if the test is to be thoroughly investigated before its inclusion in the new United States Pharmacopœia.

INFECTION AND IMMUNITY—A REVIEW.

N. S. FERRY, PH. B., M. D., RESEARCH LABORATORY, PARKE, DAVIS & CO., DETROIT, MICH.

1. CONDITIONS OF INFECTION. Infection is the successful invasion of the body by living parasites. The broader sense of the term, however, conveys to our minds, not only the process of invasion and multiplication of the micro-organisms, but also the results of their specific functions upon the tissues of the body, the pathological process. Infection, therefore, results from the entrance into the body of living, pathogenic micro-organisms, and its symptoms or manifestations depend upon influences relative to invading micro-organisms as well as the body which they invade. Anything modifying either the micro-organisms or the host must necessarily have its effect upon the final result. There are, therefore, many conditions, some of which are recognized, that control, to a certain extent, infectious or diseased processes.

Infecting Agent. The conditions which modify infection, as regards the infecting agent, are *virulence*, the *number of micro-organisms gaining entrance to the body* and the *mode of entrance.*

Virulence may be defined as the power of micro-organisms to multiply within the body and produce disease. If the virulence is increased, if in some way the power of a certain micro-organism to produce a specific disease is intensified, then the dose or the number of invading micro-organisms need not necessarily be so large to produce a like infection. We have, at present, very little knowledge of Nature's way of modifying the power of micro-organisms to produce disease, although in the laboratory, under experimental conditions, we may increase and decrease their virulence by several methods. The most common methods of increasing the virulence, are by passing a pure culture of a pathogenic micro-organism through an animal, growing the organisms upon culture media containing unheated body fluids, such as blood, serum or ascitic fluid, or in a collodion sac within the body cavity of an animal. The value of these methods depends upon the fact that the micro-organisms, while developing, come in contact with some of the properties derived from the living animal, and, therefore, approach Nature as closely as possible. The virulence of the virus of rabies is increased by passing it successively through rabbits, as is also the case of many known bacteria, as the pneumococcus, streptococcus and others. The virulence of the glanders bacillus, the diphtheria bacterium and other micro-organisms are strengthened by passage through guinea pigs. On the other hand, the virulence of micro-organisms may be decreased by removing them from their natural environment and regular source of food supply and growing them on artificial culture media. It is found, as a rule, that under these conditions the growth of the micro-organisms will gradually become more luxuriant at the expense of their virulence.

There are occasions, however, when the virulence of an organism or virus is decreased on passing through an animal. While the virus of rabies will increase

on passing through rabbits, it decreases on being passed through monkeys. This is well illustrated by the smallpox virus, which presumably decreases its virulence by passing through a heifer, and we have as a result a much milder infection. We cannot state this as an absolute fact, as the nature of the virus of smallpox or cowpox is unknown. By making use of the cowpox virus, or the smallpox virus in its altered state, we have a means of protecting against the disease in its natural state, as the smallpox vaccine will immunize against either smallpox or cowpox.

Under ordinary conditions, given the dose large enough, and the organisms virulent enough, to produce a specific infection, the results will depend, in a large part, on the path taken by the invading micro-organisms. The portals of entry, or the paths by which micro-organisms gain entrance to the body, are the broken skin, the digestive tract, the respiratory tract, the genital tract and the conjunctiva. Many of the causal organisms of the acute infections are very selective in their methods, producing their specific diseases only when allowed to enter the body by certain paths. The typhoid bacillus as well as the cholera spirillum have chosen the alimentary tract as their portal of entry, and will infect the individual in no other way. The gonococcus elects the urogenital mucous membrane, or the conjunctiva, and there is no evidence at hand to prove that specific symptoms may be produced through the skin, alimentary tract or respiratory tract. The tetanus bacillus produces its deadly results through the broken skin or mucous membrane, while the diphtheria bacterium prefers the mucous membranes of the pharynx, and is seldom found in any other situation.

Subject of Infection. Pathologic bacteria are rather underhanded in their methods of warfare for, although they are ever present, they rarely attack the body unless its natural defenses and protections are disabled or broken down; or, as we say, the resistance is lowered and the individual is susceptible. In this case, the normal equilibrium being in some way disturbed, the dormant but virulent micro-organisms, taking advantage of the situation and rapidly increasing in number, produce the infection. Susceptibility or lowered resistance, or in other words, imperfect or impaired reactive powers, are, as a rule, brought about by one or more of the following conditions: fatigue, exposure to cold, heat or dampness, poor hygiene, noxious gases, drugs, trauma and operation, other diseases, improper diet, thirst and age. How these various conditions affect the normal defenses of the body we are at a loss to explain.

2. VARIETIES OF INFECTION. The results of the growth of pathologic bacteria within the body manifest themselves in an infinite variety of ways. After the micro-organisms gain entrance to the body, they may remain at or near the point of entrance, or may find their way—by means of the blood stream, lymph channels or contiguous tissues—to some remote spot; in either situation they may multiply and produce an infection. This form of infection is termed local, and may be either acute or chronic, depending upon the length of time the morbid process has continued. Cerebrospinal meningitis, diphtheria, tetanus, the early manifestations of gonorrheal infection, as well as the ordinary pus infections, are typical local infections.

A general infection, on the other hand, is one in which the micro-organisms are found disseminated throughout the entire system. This is termed a bacteremia

or a septicemia. Typhoid fever and pneumonia are typical general infections. The primary focus of the infection is to a certain extent localized (in the lungs in pneumonia and in the intestines in typhoid), but the bacteria may be isolated, in the majority of cases, from many of the internal organs as well as from the blood stream. This condition must be distinguished from that of diphtheria and tetanus (the toxemias), in which case, although the infection is localized, the toxins and not the bacteria are found diffused throughout the system, the symptoms resulting from the action of these toxins alone. It is impossible to draw a sharp line between the local and general infections, or the bacteremias and toxemias, for in many of the local infections blood cultures may show the casual organism in the circulating blood stream, and in all infections, both local and general, there is always some general intoxication produced.

A primary infection is an original or initial infection, which is often followed by a secondary. It is, as a rule, the principal infectious process, invading the body at one time, although it may prove not to be the one to cause the death of the individual.

A secondary infection is a condition found when some other infectious process is implanted upon or associated with a primary infection. Secondary infections are usually caused by the pus organisms. When the susceptibility of the body, due to its lowered resistance, following the primary infection, is increased, the secondary organisms, which may have been present in the normal body in a quiescent state, begin to multiply, and cause symptoms typical to themselves.

Mixed or concurrent infections occur when two or more different bacterial species are found associated. Acute rhinitis, an ordinary "cold in the head," as it usually manifests itself, is a typical example of a mixed infection.

Terminal infections are found in the chronic organic diseases; as, heart disease and Bright's disease. In such cases, one or more pathogenic micro-organisms gain entrance to the body, and, encountering no resistance, due to the already decreased vitality of the body, multiply with great rapidity and produce death within a short time. The primary disease might have resulted fatally in time, but it is the secondary infection which terminates the case. Pneumonia is one of the most frequent terminal infections. The terms "mixed" and "secondary," or "secondary" and "terminal" are often used interchangeably, for there is no hard and fast line of distinction between them, except that a terminal infection always results in death.

3. MODES OF BACTERIAL ACTION. It is generally believed that in all infections the chief symptoms are due to the injurious nature of the products formed by the bacteria, and not to the invasion of the bacteria alone. In many cases, however, the intoxication is absolutely dependent upon the invasive power of the micro-organisms, and unless this is strong enough to overcome the resistance of the body, infection will not result. On account of the poisonous nature of these products they are termed toxins. These toxins are presumably of two classes, the extracellular or exotoxins (diphtheria, tetanus), and the intracellular or endotoxins (typhoid, pneumonia and others). A few bacteria, such as the tetanus bacillus and the diphtheria bacterium, with very limited invasive powers, eliminate highly active specific toxins, which produce typical symptoms of the disease, even when separated from the bacteria. These toxins may be found in solution

in the liquid culture media containing the growing micro-organisms, or in the body, after being formed by the bacteria; in which case they enter the circulation and act upon parts of the body remote from the bacteria themselves. The symptoms of the diseases are due to the toxins. Unlike ordinary chemical substances, most of the true toxins act only after a definite length of time, or incubation period. Other varieties of micro-organisms, with invasive powers less limited than the former, may be found growing in some localized area, but exciting actively destructive reactions in the tissues with which they come in contact. These are the staphylococci, streptococci, gonococci, meningococci, and others. Still another variety may be found either in a limited invasion, or in a general infection where the severe symptoms are also due to toxins, as in pneumonia, typhoid fever, and cholera. Lastly, we have a variety of micro-organisms that depend entirely upon the general invasion before the toxin can produce the injurious symptoms, as with the anthrax bacillus. The toxins, however, in all of the last three varieties are endotoxins. They are not found in the culture media in which the organisms grow, are isolated with difficulty from the micro-organisms, and then only after their death, and do not produce symptoms of the specific disease if injected subcutaneously or otherwise, although they may produce severe symptoms and even death. The toxic power of these bacteria is intrinsic, and is dependent in great part upon their invasion.

4. NATURAL DEFENSES OF THE BODY AGAINST THE INVASION OF MICRO-ORGANISMS. Nature, with its unlimited resources, has endowed the human body with many wonderful and varied devices and means for defending and protecting itself against the invasion of micro-organisms, and for neutralizing the deadly poisons as they are formed during the growth of these bacteria within the body.

The External Defenses. For preventing the bacteria from entering the body we have the skin and mucous membranes. On those parts most exposed to injury, such as the soles of the feet and palms of the hands, we find the epidermis or cuticle much thicker and tougher than in other parts. The bacteria gain entrance through these parts only by means of an injury to them. For those parts of the body that are not so much exposed to external influences, and, on account of their situation it is necessary that their surfaces rub together continually, nature has provided a lubricant to prevent them from erosion. The lubricants are the products of the secretions from the salivary, the gastric, the lacrimal, the mucous, and the serous glands. Aside from the protection afforded by the lubrication of the surfaces, as well as an aid in washing away the bacteria, these fluids have, to a certain extent, germicidal or at least antiseptic properties. Under normal conditions, the pathogenic micro-organisms, if not killed, are checked in their growth, and often prevented from multiplying and producing disease. We are still in the dark as to the nature of these antiseptic properties. We do know, however, that although we are unable to use any of the ordinary disinfectants on these surfaces, operations upon the eye, mouth, stomach or anus are rarely followed by infection due to entrance of bacteria at the field of operation. The respiratory tract, which is constantly invaded by foreign particles, as dust, coal and other debris, carrying many hundreds of bacteria with them, is protected, not only by the mucous of the lining membrane, but also by little hair-like processes called cilia. These are continually moving in one direction,

making it possible for any foreign particles, which may lodge upon the surfaces, to be gradually swept away from the lungs toward the exterior of the body.

The Internal Defenses. A study of the internal defenses of the body brings us at once to the subject of immunity. Immunity is that condition of the body whereby it resists the development of infectious or morbid processes. The external defenses oppose the entrance and retard the invasion of micro-organisms; while the internal defenses resist their development, or protect the body tissues against their poisonous products, if, by chance, the micro-organisms manage to find their way past the external defenses. As we are dealing with the products of bacteria (toxins) as well as the bacteria themselves, we must distinguish between an antimicrobic and an antitoxic immunity. One is an immunity to an infection, while the other is an immunity to an intoxication. An individual may possess an immunity to a certain micro-organism or to its toxin, or both, but the possession of one property does not necessarily imply the possession of the other. The inoculation of an animal with a large number of Bacterium diphtheriæ will not necessarily cause the appearance of unfavorable symptoms, although the injection of a very small quantity of toxin eliminated by the same strain of organisms invariably means death. On the other hand, an animal might be immunized against the endotoxin of a virulent strain of an organism such as the pneumococcus, and at the same time succumb to the injection of a small number of the live organisms.

From an early period in the history of immunity, there has been a tendency for investigators to be divided into two schools relative to the methods pursued by the body in protecting itself against the ravages of pathogenic micro-organisms; one dominated by the idea that the body fluids are chiefly concerned (the "humoral" view), the chief supporter of which is Ehrlich; the other, championed by Metchnikoff, attributing the most important role to certain cells of the body (the cellular view). More recent work has shown that these views are not necessarily antagonistic, but that both seem to have their part to play in the study of the processes of immunity, and one cannot be accepted to the exclusion of the other. Both have their faults, and yet both are founded on certain demonstrable facts.

The first attempt at an explanation which gave the slightest ray of hope to the solution of the problems of acquired resistance of the body against the invasion of foreign substances was suggested by that brilliant investigator, Metchnikoff. He studied the behavior of the white blood cells, and attributed the destruction of bacteria in the body to their activities. Others had previously noted that bacteria were at times found in these cells, but Metchnikoff made an exhaustive study of the fact, and upon this founded the Theory of Phagocytosis. The cells which took up and devoured or digested the bacteria were called phagocytes, and of these he recognized two groups—the small phagocytes or white blood cells, and the large phagocytes or cells drived from the endothelial and other tissues of the body. The small phagocytes or "microphages," as Metchnikoff termed them, seem to attempt to defend the body against the acute infectious diseases, while the large phagocytes or "macrophages" pay more attention to the animal parasites, and to the microorganisms which cause chronic infections.

Ehrlich's theory, the Side Chain Theory, on the other hand, is based on the idea

that the process of immunity is of a chemical nature; and that the antibody arises from the normal body cells, and has nothing to do with the phagocytes. He believes that the normal body cell consists of a central complex protoplasm, giving it definite and special properties. With the complex protoplasm are associated other combinations, similar to those in the benzol ring in chemistry, which have the function or property of combining with extracellular or outside material, and are called receptors or side chains. In performing the normal and every-day functions, as the assimilation and absorption of food after digestion, certain of these cells in the body have their part to play in the act. The assimilation is due to a chemical union between the receptors of the cell, on the one hand, and the nutrient material on the other, brought to them by the blood and lymph from the digestive apparatus. By means of this chemical union of a receptor and nutrient material, the protoplasm of the cell is fed. As in chemistry, in order for a certain molecule to enter the ring or to be assimilated by the protoplasm of the cell, it must be able to satisfy the affinity of some receptor; so in the every-day functions of the body the nutrient material must find its corresponding receptor, or side chain, before it can enter the cell. Ehrlich's theory, therefore, depends upon the supposition that toxins or poisons, like food or nutrient material, can combine with certain receptors and then enter the cell and destroy it. Ehrlich found that the property of the diphtheria toxin to combine with the antitoxin was constant, while the property of producing disease was variable, and from this was led to believe that the toxin molecule had two parts or groups—the toxic part or toxophore group, and the non-toxic part or haptophore group. He demonstrated, also, that the toxin molecule combined with certain cells, by means of this haptophore group attaching itself to the receptor of the cell. The haptophore group, therefore, is the link which attaches the toxic part of the toxin molecule to the receptor or side chain of the cell, and without it the toxin molecule would have no effect whatever upon the cell. The haptophore group, or combining group, is always constant; while the toxophore group, or disease-producing group, is variable. If the toxin, after attaching itself to the cell, damages it to any great extent, it causes the cell to die. If enough of the cells are thus damaged, the body as a whole is overcome by the poison and fatal results follow. On the other hand, if the cell is lightly affected, as is found in producing artificially active immunity, the cell in losing one receptor proceeds at once to generate and produce others. In this process of regeneration there is an overproduction of these receptors, which are cast off into the system, and find their way to the blood stream, lymph channels and possibly the tissue juices. Although these receptors are cast off from the cells, they are still able to combine with the toxin molecule. The cast-off receptors or side-chains are the antibodies or antitoxins, and by combining with toxin, either in another animal body or in the test tube, will neutralize it and produce a chemically inert substance. The receptor, therefore, becomes an antitoxin as soon as it is cast off, but not until then. These receptors may remain in the individual or animal in which they are formed, and continue to protect the body. This is the active immunity we see following infectious diseases and called naturally acquired immunity, or following forced immunity, as seen in an animal immunized against diphtheria toxin or the tetanus toxin, called the artificially acquired immunity. These receptors

may be transferred to another animal body, producing a condition recognized when an individual is injected with antitoxin, either for prophylactic or curative purpose, called passive immunity. In order to satisfy other conditions of immunity, Ehrlich found it necessary to distinguish three orders of receptors. The side-chain theory, in fact, is built up on such an ingenious plan that almost any condition imaginable in immunity may be accounted for by producing other orders of receptors. In the first order we find the simple receptor, which combines with the haptophore group of the toxin molecule. In this order are placed the antitoxins. Agglutinins and precipitins are included in the receptor of the second order, and the cytolysins, including the bacteriolysins, are of the third order.

5. IMMUNITY. We will first divide immunity into Natural, Inherited and Acquired. Natural immunity is the inherent, innate insusceptibility to disease. It is difficult, therefore, according to our present knowledge, to discriminate between natural and inherited immunity. It is a well known and recognized fact that certain species, races and individuals, under apparently the same conditions, are very resistant to some infections, and that others are extremely susceptible to the same infections. Typhoid fever, cholera, diphtheria, scarlet fever, measles, whooping cough, mumps and other diseases occur in man only; animals are naturally immune. Some of the diseases which are found in animals alone are hog cholera (swine), contagious pleuropneumonia (cattle), equine influenza (horses and mules), and blackleg (sheep and heifers). Diseases common to both man and animals are tuberculosis, anthrax, glanders, pyemia, tetanus, plague, actinomycosis, cowpox and many others. There are also exceptions to these. The goat and dog are considered naturally immune to tuberculosis. While ordinary sheep are susceptible to anthrax, Algerian sheep are resistant. Rats are immune to anthrax, while most birds are susceptible. Snake venom is extremely poisonous to both man and animals, with one exception; hogs are immune. The field mouse is very susceptible to the glanders bacterium, while the white mouse is immune. Another very interesting fact which may be considered an example of natural immunity is found in the mosquito. The Culex does not harbor the parasite of malaria, while the Anopheles is its common host. The ability to transmit yellow fever is limited to one particular species of mosquito, the Stegomyia calopus. Individual differences in immunity, or the natural power of resistance under similar existing conditions, occur every day. In an epidemic of typhoid fever, due to a contaminated water supply, some individuals become infected while others do not; and this may occur in the same family. Again, with whooping-cough, scarlet fever, measles or any of the acute contagious diseases of childhood, one of the children in a family may become infected, while the others will remain well. The immunity is oftentimes carried through the lifetime of the individual.

Acquired Immunity. An acquired immunity is that form of immunity gained by a susceptible individual during the life of that individual. It differs from the natural immunity, in being less certain and having a variable duration. We have two varieties of acquired immunity—naturally acquired and artificially acquired.

Naturally Acquired Immunity. Naturally acquired immunity is established

as the result of the spontaneous cure of an infectious disease. This is termed by some accidental infection.

Recovery from some of the acute infectious diseases confers a lifelong immunity to the individual, while an attack of others results in a decreased resistance. Smallpox, scarlet fever, typhoid fever, measles, whooping-cough, mumps and other infections produce an immunity which is, as a rule, lasting; although a few cases are recorded of a second and even a third attack, as the length of the immunity does not depend upon the severity of the infection. On the other hand, pneumonia and influenza not only do not produce an immunity, but usually render the individual more liable to subsequent attacks. Some diseases, therefore, produce an increased resistance, while others an increased susceptibility.

Artificially Acquired Immunity. Artificially acquired immunity is produced by intentional inoculation. This may be either for experimental or therapeutic purposes, but always with some definite end in view. This sort of immunity may be active or passive.

Active Immunity. In the active form, the immunized individual gains its power of resistance by the unaided reaction of its own tissues, or in other words, it manufactures its own antibodies. In every case the immunity depends upon specific reactions on the part of the cells and tissues of the individual. The best example of this form of immunity is illustrated in the horse which has been immunized with diphtheria toxin to produce the antitoxin. The animal is injected with a dose of toxin not large enough to prove fatal, but toxic enough to produce a reaction. The horse becomes ill and recovers, the symptoms lasting but a few days. This process is repeated until the animal is able to stand an amount of toxin many hundred times the fatal dose. After the first injection something has changed in the animal, for it will not again react in the same way to the same dose. The cells or tissues of the body have acquired a new property by their own physiological activity, and this is termed active artificially acquired immunity. Such immunity is always gained at the expense, and often at the risk, of the individual acquiring it. There are many different ways of producing this form of immunity. It may be produced either by means of the bacteria themselves or their products. Experimentally we may use the live virulent, the attenuated, or the dead bacteria, but therapeutically the live virulent bacteria are not injected into the body on account of the danger attendant upon such treatment. Wherever possible, for prophylactic purposes, the attenuated organisms are preferable to the dead, because the symptoms are the result of a mild infection, calling forth more of a specific reaction on the part of the tissues and cells of the body, thereby resulting in a more lasting immunity. In preparing these attenuated organisms for the production of active immunity, the more of their natural chacteristics they are allowed to retain, with safety to the patient, the more potent will be the result.

Micro-organisms may be attenuated by mechanical or natural means. The mechanical methods are heat, chemicals, desiccation and dialysis. The organisms are washed or scraped off the solid culture media, are thrown down by centrifugation from the liquid culture media or else are taken as they grow in the liquid culture media and are heated just enough to retard their growth or diminish their virulence. The tissues of the animal body in which the bacteria

are growing may be allowed to undergo the same treatment. A typical example of an attenuated product of this last sort is blackleg or symptomatic anthrax vaccine. Subjecting the bacteria in a similar manner to certain chemicals or their fumes may produce the same results. We may also attenuate bacteria, while still growing in the culture media, by subjecting them to heat or chemical influence as in the production of Pasteur Anthrax Vaccine. In growing under these artificial or unnatural conditions, some sort of a change takes place in the micro-organisms. They become less virulent, and when injected, the resulting symptoms are atypical of the disease. The Pasteur vaccine for rabies is attenuated by desiccation. Whether this is in fact an attenuation of the organism or merely a dilution of the virus caused by the death of many of the organisms is a question. We may also attenuate or modify a virus by dialysis. In this manner the immunizing substance, whatever it may be, is allowed to remain intact at the expense of the toxin part of the virus which is apparently dialyzable. The natural method of attenuation is by passing the micro-organisms through certain animals. This is rarely accomplished, but it has been done, as in the case of the passage of the rabies virus through monkeys. The gradual cessation of an epidemic after weeks or perhaps months of the most virulent types of infection is probably often the result of a natural attenuation of the causal organism.

In preparing dead bacteria for immunizing purposes, we strive to kill the micro-organisms, but not destroy their products. Among these products are the endotoxins. We heat the bacteria, or cause them to come in contact with certain chemicals in the form of solutions or gases, just to the point of stopping their growth. Heat has been the generally accepted agent for killing the bacteria used for therapeutic purposes, although suspensions of the bacteria may be made with dilute germicides, as the coal-tar products or other antiseptics, just strong enough to kill them, not to produce an injurious effect upon the therapeutic value of the vaccine or upon the patient receiving the treatment. Here again it must be borne in mind that the more injury to which we subject the organisms, one way or another, the less will be the production of immunity. Heat being recognized as antagonistic to those functions of bacteria which have to do with the production of immunity, it behooves us to use as little heat as possible in the process of devitalizing the organisms. Suspensions of dead bacteria, especially those intended for prophylactic purposes, prepared without the aid of heat, are being recognized more and more as superior to those treated according to the original method. Therapeutically these suspensions of dead bacteria are used in dilute form, and are called bacterial vaccines or bacterins. These vaccines may be used either prophylactically to prevent the invasion of bacteria, or curatively to assist nature in fighting an infection after the invasion of pathogenic bacteria has already been accomplished. It is claimed by some of the best authorities that the older the strain of organisms, the less will be their immunizing properties; therefore, those autogenetic micro-organisms isolated recently from a diseased process are considered preferable to those grown for a considerable length of time away from their natural environments. This is known not to be true for all organisms, especially the typhoid, and it may not hold for any. That the immunizing properties or toxin producing properties of bacteria do not go hand in hand with their disease producing properties is an already known fact. The best toxin

producing strain of the diphtheria bacterium with which we are familiar is known to be practically avirulent. If this holds true for the extracellular toxin producers, the same should pertain to the endocellular toxin producers. It is not necessary for an organism to be virulent and young in order to be a toxin producer, and therefore, why should it have to be freshly isolated and virulent to be an immunizer? It is also claimed that certain organisms which are allowed to remain for variable lengths of time in contact with their homologous antiserums will retain their immunizing properties while losing their pathogenic properties. The process of neutralizing the toxic properties of the organism with the antitoxin, termed sensitization, appears to attenuate the organisms without the aid of heat or chemicals.

The bacterial products, or the toxins, which are employed experimentally and practically, for the production of immunity in animals in the preparation of antisera, are the exotoxins and the endotoxins. Of the few exotoxins, only two are used to any great extent, the diphtheria and tetanus. We are unable to use these soluble toxins directly for therapeutic purposes, on account of their extremely harmful specific nature. Immunity is produced with them, as has already been explained in the case of the horse in the preparation of antitoxin serums, but this immunity is forced and at the risk of the individual immunized, so that for therapeutic purposes the treatment would be even more dangerous than the disease itself. A process somewhat analogous to sensitization of bacteria may be mentioned in this connection. It is known that active immunity may be produced by a soluble toxin as the diphtheria toxin, so long as it has been sensitized or even over-neutralized by its own antitoxin before injection. The toxic portion of the toxin molecule is neutralized or rendered inert without apparently modifying the immunizing properties. This principle, which has lately been applied by Behring to the active prophylactic immunization of the human against diphtheria, has been used in this country several years for the production of active immunity in animals, especially the horse, and was suggested several years ago by Smith for use in the human. The idea is not original with Behring. By far the greater number of pathogenic bacteria do not produce soluble toxins in the liquid culture media in which they are grown, but do liberate poisonous products, when the bacterial cells are disintegrated. These poisonous or toxic products are termed the endotoxins, and when injected into animals, immunize them to a certain extent against the invasion of the specific micro-organisms from which the endotoxins were obtained. The serum of the thus immunized animal has become antibacterial. Experiments have shown that it will kill the specific bacteria, by causing them to break up (a condition recognized as lysis) either in the animal or the test tube. It is termed a bactericidal serum with properties called bacteriolytic. Besides containing these substances which kill bacteria, the serum has been endowed with some properties which cause the bacteria to clump together or agglutinate, called agglutinins, and others which render the bacteria more readily ingested by the phagocytes, called the opsonins, and still others which produce a precipitate of the specific or homologous bacterial proteids by means of substances called precipitins.

Active immunity is produced artificially not only with bacterial toxins, but also with animal poisons, as snake venom, spider toxin and eel serum; and plant

poisons, such as those extracted from abrin, ricin, cotin and the poisonous mushrooms. From these poisons, which are soluble toxins, antitoxins may be obtained by immunizing animals with them. Of all these animal and plant poisons, snake venom is the only one used for therapeutic purposes. By means of this, an antitoxin is produced which has marked prophylactic properties against snake bites, and is used extensively in countries where the poisonous snakes abound.

Passive Immunity. Passive immunity is that form of immunity which depends upon defensive factors not originating in the animal protected, but artificially supplied to it. The protective material or antibody is furnished ready made at the risk of another animal, and, although the effect is secured at once, the immunity is only temporary. The best illustration is of that immunity produced by the injection of antidiphtheric serum. The diphtheria organisms are grown in bouillon to produce the diphtheria toxin. The horse is injected with this diphtheria toxin and becomes actively immunized to the toxin. The serum which contains the antibody, formed by the tissues of the horse, is injected into the patient suffering with the disease caused by the diphtheria organisms. The antibody is carried from the horse, by means of this serum, to the patient, who becomes immunized to the diphtheria toxin at once. The tissues and cells of the patient, therefore, are absolutely passive in the transaction, for the immunity is actually forced upon them. It is not the result of their physiological activity, hence the term passive immunity. The animal furnishing the defensive material must previously have been actively immunized. Passive immunity may be produced by injecting the following substances which contain defensive materials:

1. Blood serum of animals actively immunized by artificial methods.
2. Blood serum of animals actively immunized by natural methods.

Although the introduction, into susceptible animals, of blood serum of animals actively immunized by natural methods, such as those recovering from an infectious disease, raises their resistance to a certain degree, the immunity is not pronounced, nor is it lasting. The best results are obtained from those animals which are artificially immunized, especially in the production of diphtheria and tetanus antitoxin. The antitoxic serum is formed by the repeated injection of toxin during an extended period of time, while the quantity is pushed to the limit, so that the antitoxic strength or potency (antitoxin units per cc.) of the serum is as high as possible.

Passive immunity may be of two kinds, antitoxic and antibacterial, depending upon whether the individual was immunized with antitoxic or antibacterial serum. The antibacterial serums are not as specific as the antitoxic, and therefore, have not the same relative therapeutic value.

The antitoxic serums are the antidiphtheric and antitetanic. The antibacterial serums are antigonococcic, antimeningitic, antistreptococcic and antituberculic.

(To be continued.)

Papers Presented to Local Branches

THE LABORATORY EQUIPMENT OF THE PHARMACIST.*

HENRY B. FLOYD, WASHINGTON, D. C.

During the past six years and a half I have tried to make a study of the business methods employed by all of the pharmacists with whom I have come in contact. In addition to noting the general manner in which their business is conducted, the means each employs for the up-keep of his stock and for keeping his accounts, and how each handles his help, I have observed the facilities possessed for the carrying-on of the business in which he is engaged.

I do not wish to dwell upon what I have believed to be insufficient accounting systems or poor store methods, but will confine my remarks to the equipment and lack of equipment I have noted.

Let it be understood from the beginning, however, that I am not broaching this subject with malice or with the idea of exposing to criticism any pharmacist with whom I may have been associated.

It would seem logical, from the very nature of the business in which the pharmacist is engaged, to believe that he would possess a Pharmacopœia and a National Formulary, yet my observations lead me to assert that but two in five drug stores in the District of Columbia possess the eighth revision of the Pharmacopœia, and but one in every five can boast of the last edition of the National Formulary.

And with the conviction that I am absolutely right, I will say that but one in eight of the local pharmacies possesses both the latest Pharmacopœia and National Formulary.

This deficiency is infrequently partially made up by a dispensatory, but, as each of you well know, a dispensatory is not a pharmacopœia. Again, many druggists appear to accept Remington's Pharmacy as a substitute for the Pharmacopœia, the Formulary, and the dispensatory combined. With its peculiar arrangement, its brevity, and many necessary omissions, it makes a somewhat unsatisfactory reference work, and certainly can not be accepted in lieu of any one of the books mentioned, much less all three.

Only recently I was called upon to do some relief work in a store where the only reference books were a Remington, second edition, which I think was printed fifteen years ago, and a District Formulary, which, if I remember correctly, was published in the year 1870. And in one store in which I have visited within the past year there were no books whatever.

I did not venture to ask the proprietor of either of the last-mentioned stores

*Read before the City of Washington Branch, February 18, 1914.

by what means he knew the ingredients and proportions of the preparations he had occasion to make, but I am sure they could not get all of this information from the labels of the fluid-extract bottles, to which each must refer for guidance in making tinctures and some syrups. One of these druggists recently made up eight fluid ounces of tincture of nux vomica from the fluidextract, for a food and drug inspector while the inspector waited. He followed the directions given by the manufacturer of the fluidextract very carefully, and when questioned as to what process he had employed in its manufacture, he informed the inspector (in absolute good faith) that it had been made strictly according to the official process. Further comment is unnecessary.

Scales of many varieties and weights of every character, I have seen in use.

Whether the inspector of weights and measures has control of the prescription balances of a pharmacy I do not know; but if he has, I do not believe he exercises such control to the proper extent.

Some of the balances I have been forced to use actually were not sensitive to a grain, while others required a decided overweight before they would operate at all. Such instruments are not found in every store, but they are not rare.

It has not been unusual to discover a piece of tin foil or other substance on the pan-supports of scales for the purpose of making them balance, and I have actually found one pharmacist who boasts of using for the past twenty years an army prescription balance, original value about $3.75, with which it is necessary to fasten the pan supports with string.

Conditions of a similar nature with regard to weights have been observed. Any number of pharmacists have no way of weighing less than one grain, and some not less than five. It behooves the proprietors of such stores to use dispensary tablets or to divide quantities of powerful medicines with a spatula.

Weights have not been found to be wholly accurate. For example, some have been allowed to corrode and collect dirt until, in one instance, a drachm weight actually weighed 71.6 grains. The reverse condition frequently occurs when the weights have been polished with a wearing material. Mr. Bradbury, too, has had at least one similar experience. In a store where a new set of balances had just been installed at a cost of $35.00, he discovered that some of the weights ran 3 to 15 percent over-weight and others correspondingly under-weight. Twice, too, I have had to stop junior clerks from cleaning weights with a strong solution of nitric acid.

Glassware, especially that of a less expensive manufacture, is frequently inaccurate. Since the last meeting I dispensed a two-ounce mixture which could not be gotten into any two-ounce bottle in the store. Yet all of these bottles were graduated for drachms and centimeters, were of good quality glass, and had been made by a reputable firm.

Much has been said in favor of British and German graduates. Yet, few druggists stop to consider that these vessels are graduated for British or Imperial measure, which differs radically from the Apothecary's measure. Repeatedly inaccuracies arise from this cause.

At this point I wish to state that I have on several occasions seen the avoirdupois' and apothecary's ounces used interchangeably without regard to their difference of 42½ grains. The average druggist does not possess an apothecary's

weight heavier than two drachms, and it must seem logical to him to use the ounce weights which he possesses, namely, avoirdupois, wholly forgetting that they belong to a different system of weights. Not long ago a most conscientious local druggist was found selling camphorated oil below standard. A discussion of its manufacture showed that he had used avoirdupois ounces for troy when weighing his camphor.

Repeatedly, too, I have been in stores with one and two spatulas, one mortar, one graduate, and no percolators, each condition named certainly being a most marked and unquestioned deficiency. Yet, I have heard proprietors of such stores complain that they were not getting their share of the prescription business. Does any one understand why they should get any prescription business whatever?

I do not attribute these delinquencies to anything but thoughtlessness and a desire to spend as little money as possible in the conduct of the business. But should such negligence and carelessness be tolerated?

It can not be prevented under the present laws governing the practice of pharmacy in the District of Columbia, and never will be corrected until we have an adequate pharmacy law.

New York regulates the equipment of a pharmacy to a limited extent, the following being the rules in force:

a. Every pharmacy and drug store shall own and have on file at all times the eighth decennial revision of the Pharmacopœia and the latest edition of the National Formulary, and no registration certificate shall be issued to a pharmacy or drug store until it complies with this rule.

b. Every registered pharmacy and drug store is required to have the following minimum equipment of utensils:

One base scale capable of weighing one grain or less.

One set of accurate troy weights from one grain to two drachms.

One set of metric weights from 50 milligrams to 20 grams.

A set of graduated glass measures, two or more in number, capable of measuring from 10 minims to 16 fluid ounces.

A set of glass graduated measures from 5 cubic centimeters to 500 cubic centimeters.

Why were these regulations promulgated? Because they were neecssary for the welfare of the public and for the good of pharmacy.

It would be impracticable to embody all the regulations necessary for the control of the practice of pharmacy into one or several laws, but the formation of a Board of Pharmacy composed of practicing pharmacists, five, seven, or nine in number, whose rules and regulations would completely govern local pharmacy conditions, appeals to me. Such a board, with its legal advisor, and aided by two or three inspectors, who should be pharmacists, could enforce remedial regulations which would raise the standard of our pharmacies to the proper plane. I know of no other way in which this can be done.

THE PATENT MEDICINE PROBLEM.*

M. I. WILBERT, WASHINGTON, D. C.

The patent medicine problem, as it presents itself to American pharmacists today, is neither novel or popular and its continued growth has long since been recognized as a menace to the development of pharmacy as a desirable occupation. The business itself has developed as the joint off-spring of cupidity and credulity and from a very early period has been the one object regarding which members of the various branches of the drug trade have differed on more frequently and more widely than on any other.

While it is generally recognized that the manufacture, sale and use of so-called patent medicines should be considered primarily as a public health problem, the business from the drug trade point of view also involves economic questions which cannot well be ignored and which have at times at least, quite overshadowed all public health considerations. That the economic feature of the problem is on the increase rather than decrease is evidenced by an editorial in the National Druggist, (1912, v. 42, p. 414), which asserts that the number of establishments engaged in the manufacture of patent and proprietary medicines in 1899 was 2,154 and in 1909 was 3,642. The value of the products at the factories in 1899 was $88,791,000 and in 1909 was $141,942,000, an increase of approximately 70 per cent in ten years.

Whether the public health or the economic side of the problem is to be given the preference in the near future is a question that is well worth considering, and one which by the recent action of the American Pharmaceutical Association is once more set squarely before the American pharmacists for reply or action.

The patent medicine problem as it is now before the members of the American Pharmaceutical Association for discussion, was outlined in an editorial by the general secretary of the Association, in the Journal for April, 1913, (p. 425-428). This editorial points out that the duty of the pharmacist to himself and to the public, in connection with patent medicines, is to define, if possible, the legitimate status for remedies of this kind and to differentiate between acceptable and non-acceptable preparations.

This proposition was presented to the Council of the American Pharmaceutical Association at the Nashville meeting and after considerable discussion it was agreed to appoint a Commission on Proprietary Remedies to consider the following general propositions:

"1. To inquire into and report to the Council from time to time upon the general subject of proprietary medicines, in their relations to pharmacy, medicine and the public health.

2. To inquire whether any of the proprietary medicines, commonly known as patent medicines, contain alcohol or narcotic drugs in sufficient amount to

*Read before the City of Washington Branch, February 18, 1914.

render them liable to create a drug habit, or to satisfy such habits where otherwise created.

3. To inquire whether, or to what extent, the commonly advertised patent medicines contain potent drugs in sufficient amount to render them dangerous in the hands of the laity.

4. To inquire into the extent to which patent medicines are fraudulently advertised, or differ in properties or origin from the claims made for them, and the extent to which they are advertised for the cure of diseases generally recognized by the medical science as at present being incurable." (J. Am. Pharm. Assoc., 1913, v. 2, p. 1195.)

As the Commission has so far as known, made no report to the Council of the American Pharmaceutical Association, there is as yet, no indication as to what will or will not be the attitude of this Commission toward the preparations now on the market or to be marketed in the future. Some idea of the stand that must be taken by the members of the Commission, if they desire to make for progress rather than retrogression is evidenced by what has already been accomplished, not alone by the American Pharmaceutical Association, but also by other related organizations, particularly the American Medical Association.

Not to go too extensively into the history of the agitation relating to the manufacture and sale of patent medicines, more popularly designated as nostrums, we may well confine ourselves to the published records of the two national associations directly interested; the American Pharmaceutical Association and the American Medical Association, both organized over sixty years ago.

The American Medical Association almost annually, from the time of its preliminary meeting in the city of New York in 1846, to its reorganization at Saratoga Springs in 1902, adopted resolutions condemning nostrums and secret remedies of all kinds and pointed out objectionable features connected with them. Previous to the reorganization of the Association on the present basis, however, little or nothing of practical value was accomplished.

The American Pharmaceutical Association has also devoted considerable time and space to the discussion of problems connected with the manufacture and sale of patent and proprietary remedies. A cursory review of the proceedings of the Association suggests the rather interesting fact that this agitation appears to have developed in cycles and to have been markedly acute in decennial waves; the maximum height of the agitation being evidenced in the early years of the decennium. Thus, beginning with the Proceedings for 1853, the second meeting of the Association, we find the following resolution, which was on a motion of Joseph Laidley, substituted for one previously offered by C. B. Guthrie, and adopted by a majority of the members present:

"Resolved, That the American Pharmaceutical Association believes that the use and sale of secret or quack medicines is wrong in principle and is in practice attended with injurious effects to both the profession and the public at large, and believes it to be the duty of every conscientious druggist to discourage their use."

"Resolved, That this Association earnestly recommend to our pharmaceutical brethren to discourage by every honorable means the use of these nostrums; to

refrain from recommending them to their customers; not to use any means of bringing them into public notice; not to manufacture or to have manufactured any medicine, the composition of which is not made public; and to use every opportunity of exposing the evils attending their use, and the false means which are employed to induce their consumption." (Proc. Am. Pharm. Assoc., 1853, p. 17.)

The agitation in the next decennium was largely centered about the manufacture of fluidextracts and the development of proprietary rights in preparations of this type, and ten years later we find a similar line of activity developing in connection with elixirs, which at that time were so popular. At the end of another decennium, however, the attention of members of the Association was again directed to patent medicines of the nostrum type by a resolution offered by Prof. A. B. Prescott, of Ann Arbor, to the effect that a committee of three members be appointed to agree upon the most feasible and suitable legislation to secure a sufficient statement of the composition of proprietary medicines on the package of the same, and that more feasible and efficient action be taken by the Association in regard to the matter. The committee appointed consisted of Albert B. Prescott, Frederick Hoffmann and Charles Rice. This committee at the succeeding meeting of the Association presented a lengthy report on the nature of desirable legislation regarding the manufacture and sale of proprietary remedies, and also a draft of an act regulating the sale of proprietary medicines. The committee in its report offered a resolution which was subsequently adopted by the members of the Association present, to the effect "that it is the deliberate opinion of this Association that labels of proprietary medicines ought to carry a statement of their constituents." (Proc. Am. Pharm. Assoc., 1885, v. 33., pp. 394-398.) As evidence of the need for action along these lines the committee said in part:

"All medicines, and articles used as such, concern the health of those who use them and put dependence upon them. By action or failure of action, a medicine is liable to prove hurtful when misapplied. Therefore it is the right of a purchaser of a medicine to receive information of its constituents, their names and proportional quantities. And it is a legitimate act of the State—so far as it deems expedient—to see to it that such information, in printed form, is placed upon each package of articles of medicines, as a condition of their legal sale.

"Moreover, legislation requiring the composition of medicines to be given to the consumer is entirely in accord with the spirit of the institutions of the United States, because it is legislation to secure to him the means of self-preservation. If the purchaser of a medicine is provided with a record of its constituents, given in terms defined by published standards: now he may guide himself, in his own discretion or with professional aid, by the information given in the record of constituents, or he may neglect to so guide himself, and depend upon advice given on the wrapper of the medicine, in the exercise of his personal responsibility. The State has done its duty, and given the individual the opportunity for the exercise of discretion. The opportunity has an educational value to the individual."

The following year the Committee on Legislation, in its report of progress,

(Proc. Am. Pharm. Assoc., 1886, v. 34, pp. 10, 154-155) included a resolution to the effect that:

"Whereas, All medicines concern the health of those who use them; and

"Whereas, The purchaser of a medicine selected by himself has the right to receive information of its constituents and their quantities; and

"Whereas, The report and the draft of a law regulating the sale of proprietary medicines, which was accepted by the American Pharmaceutical Association at its meeting held in September, 1855, embraces a method whereby the above mentioned object may be secured; therefore be it

"Resolved, That the President and other officers of the Association be authorized and instructed to present printed copies of the reports and of the action had in this Association upon said reports, to the Governors, to the Speakers of the Senates and Houses of Representatives, and to the State Boards of Health, of the different States of the United States; also to offer any services wherein these authorities may consider the co-operation of this Association desirable or useful."

This preamble and resolution were vigorously discussed and a motion that they be stricken from the minutes of the Association was defeated. The report of the Committee was then on motion accepted, and finally on motion of C. Lewis Diehl, seconded by C. S. N. Hallberg, the preamble and resolution were adopted.

Despite the endorsement given the report of the Committee of Legislation, little or nothing of a practical nature appears to have been done. During the early years of the succeeding decade a few isolated papers on patent medicine abuses, from a public health point of view, were presented but their readers found no following and the resolutions they offered appear to have been overlooked or ignored while much of the time of the Association was devoted to the discussion of a plan or plans to remedy the "cutting of prices." The seriousness with which time was wasted on the discussion of the several plans that were suggested at that time serves well to illustrate the comparative importance that has been accorded the purely economic side of this problem by various branches of the drug trade.

At the semi-centennial meeting of the American Pharmaceutical Association, in 1902, several papers were again presented, bearing on existing abuses in connection with patent and proprietary remedies. These papers dealt principally with the abuse of so-called proprietary medicines and their use by physicians and, perhaps, contributed somewhat at least to the renewed interest on the part of the American Medical Association in matters relating to the use of secret or semi-secret remedies by medical practitioners.

At the meeting of the American Medical Association in New Orleans in 1903 a number of papers were presented criticizing medical journals for the nature and kind of advertising carried by them, and a resolution adopted by the then Section on Materia Medica and Pharmacy condemned much of the advertising then carried in the Journal of the Association itself. At this meeting of the Association provision was also made for pharmaceutical membership in the American Medical Association and at the meeting in Atlantic City the following

June a number of pharmacists were elected and the discussion on materia medica subjects, with the resolutions adopted at Atlantic City in 1904, no doubt were directly responsible for the inauguration of a Council on Pharmacy and Chemistry, the object of which was to endeavor to differentiate between good and bad proprietary remedies used by or offered to physicians.

A preliminary meeting of persons interested was held in Philadelphia on December 29, 1904, and the Council itself was organized in Pittsburg on February 11, 1905. This Council was immediately set to work and by June of the same year the comprehensive and at that time startling report on the acetanilide mixtures was published in the Journal of the American Medical Association and, as was expected, precipitated the wrath, not alone of pharmaceutical manufacturers, but also of medical journals that depend so largely on their advertising pages for existence. The so-called acetanilide report served, however, to arouse the better class of medical men to an appreciation of their duty as professional men and the endorsement thus secured has contributed much to maintain the Council despite the attacks of moneyed interests within and without the membership of the Association.

The work of the Council was later in the year efficiently augmented by the series of articles originally published in Collier's Weekly by Samuel Hopkins Adams, on the "Great American Fraud," and subsequently reprinted in pamphlet form by the American Medical Association. The Food and Drugs Act of June 30, 1906, also contributed its share in support of the work of the Council. These several agencies have been further augmented by the stand taken by the Commissioner of Internal Revenue in regard to alcohol-containing nostrums and by the assistance given by various state officials entrusted with the enforcement of local food and drug laws, so that at the present time there is considerable evidence to show that the efforts of the Council on Pharmacy and Chemistry have made a distinct impression on thinking laymen as well as on the more progressive members of the American Medical Association.

Following the inauguration of the Council on Pharmacy and Chemistry, the American Medical Association organized a chemical laboratory in the Association building and this laboratory in addition to the work on "Proprietary Remedies," has devoted considerable time to the examination of so-called "patent medicines" or "nostrums." The resulting analyses are usually published in the Journal and have been in part at least, compiled in book form in a volume entitled, "Nostrums and Quackery."

This book has recently been reprinted in enlarged form and its increasing circulation among well informed laymen will contribute much to a better understanding of the patent medicine problem from a public health point of view and should serve to prevent any possible retrogressive action on the part of the American Pharmaceutical Association as an Association.

In summing up this brief and admittedly incomplete survey of recent accomplishments to solve the "patent medicine" problem, it would appear that the questions involved are not to be considered as being answered until they are answered correctly and that from the point of view of the public the influence of "patent medicines" on the health and welfare of the individual is the only factor deserving of consideration. Bearing this latter fact in mind, it would appear de-

sirable that all branches of the drug trade give the patent medicine problem renewed and serious consideration and make an honest effort to adjust their interests in accord with the interests of the public and thus effectually counteract the frequently made assertion that the economic questions involved must outweigh all others so far as the drug trade may be concerned.

PETROLATUM LIQUIDUM, U. S. P. VIII.*

(Paraffinum Liquidum. White Mineral Oil.)

S. L. HILTON, WASHINGTON, D. C.

The U. S. P. VIII provides that this substance shall conform to the following description:

"A mixture of hydrocarbons, chiefly of the methane series, obtained by distilling off most of the higher and more volatile portions from petroleum and purifying the liquid residue.

"A colorless, or very slightly yellowish, oily transparent liquid without odor or taste but giving off, when heated, a faint odor of petroleum."

Sp. G., .870 to .950 at 25° C. Tests are given for solubility, acid impurities, fixed oils or fats, either animal or vegetable and readily carbonizable impurities.

It is proposed for the U. S. P. IX, to change the official title to Paraffinum Liquidum, which seems to be wise and in conformity to modern standards. The description, allowing a very slight yellow color, is a mistake as there is no difficulty in obtaining a colorless oil, except the oils of this kind that are produced in this country. The new requirement that it shall be free from fluorescence is proper and not necessarily exacting.

From a careful study of a number of samples of White Mineral Oil, obtained from various sources, the appended table shows that the official requirements can be met without much difficulty, it is further demonstrated that an oil that is usually above the Sp. G. .870 will show more or less solid paraffin when subjected to a temperature of —4° C., yet in the table two samples, each of the Sp. G. of .875 remained perfectly clear after being subjected to this temperature for eight hours. It is therefore evident that in the process of purification chilling was not thorough or carried on for a sufficient length of time and the final filtration was not performed at the same temperature. The desire to have as heavy oil as possible for internal administration as recommended by Dr. Lane, of London, is no doubt accountable for such a large number of samples with a specific gravity lower than .875, becoming opaque or milky at this temperature.

With proper manipulation and care an oil of the Sp. G. .8755 should show no separation of paraffin on chilling; some standard covering this point should be provided, that is, a minimum specific gravity that will show no separation of paraffin when the oil is subjected to a temperature of at least 0° C.

None of the samples showed an admixture of fixed oils or fats, either animal

*Read before the City of Washington Branch, March 18, 1914.

or vegetable; the test is one that must be carefully applied; the neutralizing of the alkali with strong sulphuric acid, after digestion, is violent unless it is added very slowly.

The results of the Sulphuric Acid Test are most interesting, showing almost every shade of brown, and in several cases the oily layer became opaque and colored, and not conforming to the requirements of the U. S. P., the British Pharmacopœia or the German Pharmacopœia.

As to the internal administration of Paraffin Oil, a number of specialists of this city have used it for several years. The principal method followed by them is to administer from 15 to 60 cc. at bed-time; in obstinate cases of constipation 15 cc. administered about one hour before meals, so as to avoid interfering with digestion. With these methods of administration good results have been produced; there are however, many cases of complaints that the oil will pass out of the intestinal tract involuntarily very much to the discomfort of the patient, even when given in very small doses. This trouble seems to be more frequent with the administration of one of the popular brands of the market which shows a specific gravity of less than .860.

Paraffin oils of a specific gravity of .880 or more are rather more difficult of administration than those of .870 to .875. They adhere to the month very closely and to some are disagreeable and suggestive of Castor Oil.

An oil aromatized or flavored with some essential oil or combination of oils seems to be growing in demand. I submit ten samples, any of which no doubt would be agreeable to some. Personally, peppermint seems to be the most pleasant and agreeable, cardamon a close second; no doubt many would prefer spearmint, owing to the chewing gum craze.

The flavoring of paraffin oils must be done with care; from 5 to 25 drops of an essential oil will be found sufficient for 500 cc. While this small amount may not give a pronounced odor, it must be remembered that the dose administered, 15 to 60 cc., will be sufficient to give a fairly pronounced taste. The samples submitted contain in each 500 cc. the following amounts of essential oils: almond 15 drops; clove 10 drops; anethol 10 drops; cinnamon 5 drops; peppermint 15 drops; spearmint 15 drops; sweet birch 25 drops; wintergreen 25 drops; and aromatic, using the oils constituting spirit aurantii comp. 15 drops.

Another interesting phase of the examination is the various prices charged for these paraffin oils, those with fancy coined names commanding very much more than other oils on the open market and all or nearly all coming from the same source and possibly from the same importer. As pointed out by Mr. Wilbert, the better or finer grades come from Russia, hence the name Russian Mineral Oil. The American oil usually has a fluoresence, is slightly yellow in color and has a more pronounced petroleum odor when heated. The best grades of Russian oil can be purchased for about 80c a gallon, while those with trade or coined names will cost from 40c to 60c a pint.

Pharmacists are able to supply physicians and their patients with an oil of high quality, reasonable in price and should avail themselves of the present opportunity. An oil of at least Sp. G. .8750, that is colorless, tasteless and free from fluorescence, that will not show more than a pale brown color with the sulphuric acid test, free from admixture with animal or vegetable oils and

remains clear when subjected to a temperature of 0° C. for four hours seems to be the oil most desired, and if demanded, can readily be obtained.

EXAMINATION OF WHITE MINERAL OILS.

Brand.	Price Gal.	Color and Taste.	Odor.	Sp.G. 25° C.	Saponif. Test.	H_2SO_4 Test.	Freezing Test—4° C.
Amalie Gloria, Grade "A"	85c	Colorless and tasteless	None	.87893	Nil	V. P. B.	Slightly opaque
Amalie Gloria, Grade "B"	75c	Colorless and tasteless	None	.86752	Nil	V. P. B.	Slightly opaque
Amalie Gloria, Grade "C"	65c	Colorless and tasteless	None	.85884	Nil	V. P. B.	Clear
Amalie Russian, Grade "A"	53c	Colorless and tasteless	None	.85953	Nil	Brown	Clear
Amalie Russian, Grade "B"	50c	Slgt. fluores Slgt. Pet. taste	None	.85992	Nil	Brown	Clear
Liq. Albolene	40c pt.	Colorless and tasteless	None	.85979	Nil	Brown, oil layer colored	Clear
Zinkeisens, Russian	90c	Colorless and tasteless	None	.87688	Nil	V. P. B.	Quite milky
National Aniline Co. No. 2	80c	Colorless and tasteless	None	.87546	Nil	Brown	Clear
National Aniline Co. a2138	80c	Colorless and tasteless	None	.88154	Nil	Brown	Slightly opaque
S. K. & F. Co., Russian	..	Colorless and tasteless	None	.87599	Nil	Pale brown	Clear
"Squibbs"	40c pt.	Colorless and tasteless	None	.87519	Nil	Pale brown	Slightly opaque
"Olo"	34c pt.	Yellow cinnamon	Slight cinnam.	.87976	Nil	Brown, oil layer brown	Slightly opaque
Teralbolia	..	Fluorescent, tasteless	None	.85535	Nil	Red brown, oil layer dark bwn. & opaque	Slightly opaque
Freeman's Russian Min. Ol.	50c pt.	Colorless and tasteless	None	.88257	Nil	Pale brown	Quite milky, ropy separation in layer at top
Petrolax	..	Colorless and tasteless	None	.88165	Nil	.....	.....
Unknown No. 1	..	Slight fluor.	None	.86812	Nil	Dark brown	Clear
Unknown No. 2	..	Colorless and tasteless	None	.87765	Nil	Pale brown, oil layer slty. col.	Slightly opaque
White Liquid Vaseline	..	Very decided fluorescence	None	.85360	Nil	Red brown, oil layer dark brown opaque	Quite milky
Barrett & Co., Russian	$1.00	Colorless and tasteless	None	.8840	Nil	Pale brown	Quite milky
Wilson's Sons White Min. Ol	70c	Sample dirty, very yellow in color, no examination.					

Prices stated are wholesale.

ABBREVIATIONS, ETC.

V. P. B. Very pale brown.

Amalie Brands, from L. Sonneborn Sons, Inc., New York.

"Olo" American Olo Co., Llanerch, Pa.

Teralbolia, Robert C. Cadmus, Philadelphia, Pa.

Freemans Russian Mineral Oil, Aseptic Chemical Co., Chicago, Ill.

Barrett & Co., Importers, Chicago.

Zinkeisen, National Aniline & Chemical Co., E. R. Squibb & Sons, New York.

S. K. & F. Co., Smith, Kline & French Co., Philadelphia, Pa.

THE RENEWED INTEREST IN PARAFFIN OIL.*

M. I. WILBERT, WASHINGTON, D. C.

Within recent years renewed interest is being taken in paraffin oil for internal administration in the treatment of intestinal stasis or chronic constipation. This renewed interest is largely due to the fact that a noble English surgeon, Sir W. Arbuthnot Lane, in his experimental work to prevent the formation of adhesions after surgical interference in the intestinal tract found that paraffin oil served as an intestinal lubricant and was of material assistance in overcoming persistent constipation.

This use of paraffin oil is by no means new, however, and dates back many years to the introduction of refined petroleum products by Chesebrough and others about 1872.

Previous to this date the residues in petroleum stills had little or no commercial value and were used almost exclusively as lubricants, more particularly axle grease. The possibility of producing an odorless and practically colorless oil and heavier fat by comparatively simple methods, presented the peculiar problem of establishing a market for products of this kind and for some years at least the substances were used largely, if not exclusively, for the adulteration of other fats and oils and it is this use of vaseline and of vaseline oil as adulterants that later led to experiments to demonstrate their possible food value and the presence or absence of harmful or toxic ingredients. Experiments carried on by N. A. Randolph, Philadelphia, about 1884, not only demonstrated that the heavier petroleum products were not absorbed from the intestinal tract but also showed that they served to act somewhat in the nature of foreign material and might have some value in the treatment of certain forms of constipation. It was also thought that these products appeared to inhibit fermentation and would, therefore, be of value in the treatment of certain forms of diarrhoea. Some fifteen years later Robert Hutchison, of England, reported practically the same observations and this lead to the then quite extensive use of petrolatum and of paraffin oils for various intestinal disorders.

The at one time widespread use of purified petroleum products in the treatment of pulmonary disorders is, to some extent, traceable to the administration of the naturally occurring petroleum products in various countries and at various times. Crude petroleum has been used from time immemorial as a medicine and perhaps largely because of its disagreeable odor was from very early times used in the treatment of diseases of the respiratory tract. In this country Seneca oil had considerable vogue from time to time and was frequently put out in the form of proprietary or "patent preparations" for the treatment of various diseases. After the introduction of purified petroleum products these were offered as substitutes for the formerly used crude oil and even at the present time the advertising matter put out in connection with some of the popularly exploited prepara-

*Read before the City of Washington Branch, March 18, 1914.

tions of petroleum do not satisfactorily designate whether or not the crude or the purified product is being advocated.

During the past three or four decades, purified petroleum products have been marketed under scores if not hundreds of proprietary names and the misleading claims and statements made in connection with these several preparations are far from being a credit to the owners or to the persons who act as distributors for the several articles. That there is some element of truth in the claims that have been made for petroleum products is evidenced by the fact that the use of petroleum, crude and refined, has persisted in all parts of the world and has at times, like the present, reached amounts that were quite considerable.

With the renewed interest in paraffin oil that is in evidence at present, the time appears to be particularly opportune for pharmacists who are willing to assist in making for true progress to do missionary work and to point out to physicians in a rational and sensible way that paraffin oil and other petroleum products, while they may be useful, must have limitations, that the claims made for the proprietary articles are unfounded and not based on fact, that in the event that the physician does wish to experiment with the product, non-proprietary oils of high quality are readily available and finally, that these non-proprietary products can be sold to the patient at a very much lower figure than can the proprietary article and still yield the retail druggist a more satisfactory profit.

As intimated above, the products that are available at the present time are many, or at least appear to be numerous because of the varied trade names under which they are offered. On studying the nature of these products, however, it appears that there is no very great difficulty in establishing certain, at times perhaps arbitrary, lines of demarcation between them and identifying them as belonging to one or the other class of commercially available oils readily obtainable by any pharmacist.

The bulk of the available supply of heavy mineral oil comes from two sources and the products differ materially in chemical composition. The American oil is obtained from paraffin base petroleum and consists essentially of hydrocarbons of the methane series having the general formula CnH_2n+2.

The so-called Russian oil, obtained largely, if not entirely, from the oil wells in the Baku district, consist chiefly of monocylic polymethylenes or naphthenes having the general formula CnH_2n. These latter products have been described as hydrated aromatic hydrocarbons and while they behave with reagents very much in the same way as do the hydrocarbons of the methane series, they are more readily purified and generally occur in commerce as water white oils that are quite free from fluorescence or odor. The American paraffin or methane oils usually have a distinct color and are seldom quite free from fluorescence or a peculiar dichroic effect that is particularly noticable when the preparation is viewed by reflected light. Apart from the appearance, however, there is no evidence that the two products differ in their effect on the animal organism and one has perhaps as many advocates and users as the other.

The density of the commercially available products also varies and the fact that it is proposed to extend the present U. S. P. limits of specific gravity, 0.9870 to 0.940 at 25°, to read 0.845 to 0.940 at 25°, clearly indicates that the members

of the present Committee of Revision are themselves not convinced as to the properties that should be inherent in a mineral oil for medicinal use.

The paraffin oil official in the Pharmacopœias of the Continent of Europe are usually of the denser variety, 0.875 or higher at 15°, but this is probably due to the fact that there the oil is largely used as a basis for ointments and the various other uses are only now being developed.

In this country paraffin oil or, as it is better known, liquid petrolatum, has long been in use as a basis for oil sprays in the treatment of affections of the nose and throat and for this purpose the lighter and more limpid oil appears to be preferred. For internal administration Sir A. W. Lane prefers the heavier, European type of oil and this is now available in this country and is being introduced by a number of manufacturers and dealers, under proprietary titles, to be sold at fancy prices. Even for internal use, however, there appears to be a definite limit to the solid paraffin that an oil can hold in solution and be palatable or readily taken. At comparatively low temperatures some of these oils are nearly solid and even at ordinary temperatures they are so viscid that they do not readily leave the mouth when taken internally.

I will not undertake to discuss the various commercially available products in detail or to point out to you the reasons why these heavier oils are objected to by many. Mr. Hilton has made a comparative study of a number of products which he promises to report on and he will also have something to say in regard to methods of administration and the possible flavoring of the oil to make it more palatable.

One further question that may be discussed briefly is the dose. One firm, the owner of the product most widely used in this country, says:

"Excellent results are obtained by giving the oil in small doses. In mild cases a tablespoonful at night gives prompt relief. In longer standing cases make it almost a part of the diet and give one or two teasponfuls just after meals."

Dr. Lane and many of his followers, on the other hand, give the oil in much larger doses and insist that it be given shortly before meals so as not to interfere in any way with the digestion of food which it probably would if as proposed above it were given with or immediately after meals and thereby intimately mixed with the stomach content.

Bastedo, in his book on materia medica, pharmacology, therapeutics and prescription writing, states that the oil is only mildly laxative and should be given in doses of 30 cc. two or three times a day. Other authorities advise even larger doses, and Robinson (Medical News, 1900, v. 77, p. 56), reports that he frequently administered nearly a pint in a few hours without any indications of discomfort and no untoward results of any kind. Robinson also asserts that he was able to duplicate the experiments reported by Randolph and reclaim all of the oil that was ingested. Some recent German experimenters, however, appear to believe that a part, at least, of the oil is changed or absorbed in the intestinal tract, and while the bulk of it passes through unchanged it is not possible to reclaim absolutely all of the oil as taken. At the present time, the preferred dose is from one to two tablespoonfuls one hour before meals or from two to four tablespoonfuls on retiring. The oil may be flavored to make it less objectionable.

and several authorities appear to prefer administering the product in the form of an emulsion, though others claim that the emulsion is not so satisfactory and does not give the same uniform good results.

In addition to its use internally as a lubricant or laxative, paraffin oil is also given in the form of rectal injections, and is being exploited more recently as a dressing for wounds, both recent and chronic. In connection with chronic ulcers it is being extolled as a dressing to protect the skin around the focus of suppuration. The oil in these cases not alone protects the skin against irritation from oozing, thus warding off eczema, but also keeps the dressings from sticking.

The use of liquid petrolatum as a soothing application in the form of a spray to inflamed membranes of the nose and throat is well-known, as is the use of the same product in cosmetics, such as skin creams or pomades, and the use of this product for these several purposes need not be discussed.

In conclusion then, the object of this communication is to call attention to the renewed interest that is being manifested by medical men in paraffin oil for internal administration, and as an adjuvant dressing for wounds, and to suggest to pharmacists that they acquaint themselves with the properties of the available material for the purpose of pointing out to physicians the nature and the kind of material that is available as well as the limitations that probably exist.

NEW EQUIPMENT.

A Baltimore druggist had a fine set of black walnut fixtures, twenty years old and good for fifty. His counters were three feet wide and he had six feet of floor space between them. His store was long, dark, narrow, and looked not unlike a tunnel. His wall cases were deep and massive. Everything about the place was gloomy and ponderous. He was persuaded to scrap the whole outfit and put in complete new equipment. In place of the old, heavy black walnut fixtures, new fixtures of a light color were installed. Three-foot counters gave way to counters eighteen inches wide; wall cases were made narrower. He gained six feet of sorely needed floor space. This gave plenty of room for soda-water tables, something he had never been able to use before.

The new store looked 50 percent lighter and had a roomy effect greatly different from that of the old tunnel. The druggist had been urged by the fixture salesman to keep statistics, and did so to the best of his ability. Soda business increased about 100 percent the first month, and was still showing a steady increase at the end of the first year. The general business showed an increase of 60 percent at the end of three months, when the first balance was figured, and an increase of 110 percent at the end of the first year. The equipment this druggist threw away was all fairly good, some of it in prime condition, but it was out of date. It didn't fit in with the times, and here is an important reason why new equipment does increase business.—W. S. Adkins in *The National Druggist.*

Of General Interest

NATIONAL ASSOCIATION OF BOARDS OF PHARMACY.

The joint meeting of the Executive and Advisory Examination Committees of the National Association of Boards of Pharmacy was opened at the Tampa Bay Hotel, Tampa, Fla., February 20, at 11 a. m. At the meeting of the Executive Committee President Berger occupied the chair and, in the absence of Mr. Sala on account of illness, Mr. C. E. Zinn was elected temporary secretary.

Mr. Ben Freer, of the Tampa Druggists' Association, welcomed the members of the National Association in a cordial address, to which Mr. Zinn responded. Mr. J. C. Burton, chairman of the Executive Committee, reported that the committee had secured incorporation for the association; that the Kansas State Board had affiliated with the association and detailed the activities of the committee during the past year. The secretary was instructed to mail to all members of boards of pharmacy in the U. S. a copy of the report of the Executive Committee. The Advisory Examination Committee was directed to take up the work of visiting boards of pharmacy during the examinations of such boards. The secretary was instructed to call in all reciprocal blanks and to reimburse the amounts paid for same. It was also ordered that new blanks be immediately printed and that they should be obtained of the national secretary and that a fee of $5 must accompany order for same.

At 10 o'clock on February 21 the meeting of the Advisory Examination Committee was called to order by Chairman Christensen. An interesting discussion took place upon the variance of examination-questions of Boards of Pharmacy, and Chairman Christensen presented two examination papers to show the wide difference between these questions. One he characterized as too elemental and the other as too technical, both "entirely lacking in balance or distribution and practically useless in so far as to determine the fitness of the candidate." He said that much work had been done looking toward the preparation of questions and it was voted expedient to hold a meeting at St. Louis that questions might be tabulated and methods of improvement devised. On the 23d a joint conference was held, with President Berger presiding. It was the sense of this meeting that many changes must be made by a number of state boards in order to produce that uniformity which should precede reciprocity, and the Advisory Examination Committee were instructed to meet at the earliest possible date to study that question and to notify members of Boards of Pharmacy of the completion of their work and that the questions were available upon request.

A vote of thanks was extended to President Berger, the druggists of Tampa, and to the daily press for courtesies extended the delegates to the Convention.

<>

NATIONAL FOOD TRADES CONFERENCE.

A very important conference was convened at the Waldorf-Astoria Hotel, New York City, on February 27, last, at the meeting of the National Food Trades Conference.

This Convention was called to consider subjects of general interest to those concerned in the manufacture, sale and use of food products, to encourage the greater uniformity of efficient food-control laws and to aid generally in attaining purer and better foods, honestly and properly labelled and advertised.

There were present at the meeting representatives from many national and state associations composed of those interested in food products, among them being the National Civic Federation, the National Wholesale Grocers' Association, the National Retail Grocers' Association, the National Coffee Roasters' Association, the American Spe-

cialty Manufacturers' Association, the National Confectioners' Association, the U. S. Brewers' Association, the National Association of Macaroni and Noodle Manufacturers, the Wholesale Grocers' Association of Pennsylvania, New Jersey and Delaware, the Association of Manufacturers of Products from Corn, the Cocoa and Chocolate Manufacturers' Association, the Millers' National Federation, the Oyster Growers' and Dealers' Association and also from many firms of national prominence, among whom were the Shredded Wheat Co., the Franco-American Food Co., the Pacific Coast Borax Co., the Welch Grape Juice Co., Borden Condensed Milk Co., and Merck & Co. In addition to these many persons of national prominence were in attendance.

The Convention was called to order by Mr. Louis Runkle, the President of the American Specialty Manufacturers' Association. In his opening remarks he said the purpose of the conference was to afford " a forum where our pure food laws might be considered by all interested, to the end that uniformity of these laws may be advanced and better food products be insured to the consumer." He said that the conference was originally called by the American Specialty Manufacturers' Association, for it was, and is, believed that through its medium a spirit of harmonious, cordial and sympathetic co-operation might be evolved to the great benefit of the American people. Uniformity of laws means a strengthening of all legislation, both federal and state, and more efficient administration to the end that a single and best standard would be provided for all, and that equal protection which all citizens of the country should receive and enjoy. He closed his remarks by saying, "Let us therefore confer together in common counsel, and by this conference accomplish a real work in aiding in bringing our laws and their enforcement to that highest point of efficiency throughout this entire nation, so that our national efficiency may be enhanced, both for ourselves and our posterity."

Communications expressing approval of the objects of the conference were read from John A. Wallace, New Castle, Pa., and from many others of national prominence in the movement.

The President of the Board of Health of Greater New York, Dr. S. F. Goldwater, welcomed the conference to the city. He said that conference was particularly to be welcomed because it promised unity of effort in the direction of pure food legislation, a spirit of co-operation among manufacturers and the public and the representatives of the state law-making power and administrative power. He was encouraged to believe that the results of the conference would reduce the activities of the board of health to a minimum, if it asked the hearty and active co-operation of the manufacturers and producers to join hands in doing what the interests of the community demand.

Mr. George L. Flanders, counsel of the Department of Agriculture of New York, and President of the National Dairymen's Union, addressed the Convention and spoke of the great difficulties of attaining concordant opinions in regard to laws which should be passed and also as to their construction by courts when they were formulated into law. The same law had been declared constitutional in New York and unconstitutional in Pennsylvania, and in the States of Michigan and Minnesota the same disagreement had appeared. The Supreme Court of Minnesota had declared a law relative to the bonding of commission merchants constitutional, while the highest court of Minnesota decided the same law unconstitutional. This state of things might be attributed to the fact that the constitutions of these states were different, and from this fact would naturally result non-uniformity in legislation. Speaking of the difficulty of controlling the use of preservatives in food, he instanced the decision of the courts of New York that, "To preserve food products for the human family is a laudable purpose and any law that says you shall not preserve a food-product contravenes the fundamental principles of our constitution." He refered to the illegal delegation of powers by legislatures to boards and commissions, to make laws and condemned the practice as not only unwise, as tending to further a chaotic state and not a cosmic one, but also as one which would undoubtedly be declared unconstitutional by the courts. If you want standards, get them in the laws, he said, and then get decisions of your courts upon those laws, and if the laws are not right, change them.

The report of the Secretary giving an outline of the action leading to the conference was read and approved.

The report of the Executive Committee was

accompanied by several resolutions as follows, all of which were adopted by the Convention:

Resolved, That the National Food Trades Conference does hereby recommend the appointment of a competent Federal Commission by the President by and with the consent of Congress authorized and directed to investigate the pure food and drug laws of such foreign nations as may appear most advisable, and their administration and enforcement and to report fully the result of such investigation, which report shall include a statement of the existing laws, regulations, standards, methods and such other information as may be of interest, which report shall be published and made available for general use.

Resolved, That this National Food Trades Conference hereby earnestly urges that every effort be made to the end that such uniformity may be as fully realized as possible, in the interest of the general public welfare.

Resolved, That the National Food Trades Conference directs its duly appointed Committee on Collaboration to give this recommendation careful and thorough consideration and to confer with the National Food Control Officials and the Association of American Dairy, Food and Drug Officials and render a complete report thereon at the next meeting of this conference.

Resolved, That the National Food Trades Conference hereby records its warm approval of any changes in the administration of the Federal Food and Drugs Act of June 30, 1906, which may render the operation of that act more effective and extends to the Secretary of the United States Department of Agriculture and the officials co-operating with him in this work this expression of their confidence and best wishes and offers its heartiest co-operation.

Resolved, That the National Food Trades Conference earnestly recommends that the pure food laws of the several states not now so providing be amended so as to incorporate the amendment of the Federal Food and Drugs Act of June 30, 1906, requiring the statement of the net weight, measure or numerical count in the case of packaged food and providing that variations, due to natural or mechanical causes beyond reasonable control, shall be permitted and tolerances and exemptions as to small packages established by rules and regulations.

Resolved, That the National Food Trades Conference hereby recommends that an additional provision be inserted in such state law, if it is not already provided, to the effect that the rules and regulations permitting reasonable variations and establishing tolerances and exemptions as to small packages be in harmony with the similar rules and regulations established under the Federal law.

Resolved, That the Secretary of this conference be and he hereby is authorized and directed immediately to communicate this resolution to the proper officials of the several states whose legislatures are now or will shortly be in session, and earnestly urge compliance therewith.

Resolved, That this conference hereby directs its duly appointed Committee on Collaboration to confer and co-operate with the officials of the several states and legislatures of which will be in session during 1915 and with the Association of American Dairy, Food and Drug Officials to the end that the purpose of this resolution may be most fully realized.

Resolved, That the National Food Trades Conference hereby extends to the National Civic Federation in the inception of this important work its very best wishes and suggests and directs its duly appointed Committee on Collaboration to offer its sincerest co-operation.

Resolved, That the National Food Trades Conference hereby strongly endorses an amendment of the Federal Food and Drugs Act of June 30, 1906, which will provide against such an exposure of food to contamination or insanitary conditions as would render it unwholesome and unfit for consumption and requests and directs its duly appointed Committee on Collaboration to confer with the Federal Food and Drug Control officials and with the Association of American Dairy, Food and Drug Officials, to the end that such an amendment may be accomplished at the earliest date and the laws of the several states amended in a similar manner.

Resolved, That the National Food Trades Conference does hereby earnestly endorse these efforts and directs its duly appointed Committee on Collaboration to co-operate with the above named officials to this end.

Resolved, That the National Food Trades Conference hereby offers to the Association of American Dairy, Food and Drug Officials its heartiest co-operation and requests and directs its duly appointed Committee on Collaboration to confer and co-operate with this above named association, in every way, so as to accomplish the most equitable, efficient and uniform food control laws and regulations and enforcement thereof, Federal and state.

Resolved, That the National Food Trades Conference hereby requests and directs its duly appointed Committee on Collaboration to confer with the Federal Food and Drug Control Officials and with the Association of American Dairy, Food and Drug Officials to the end that such action may be taken which may be necessary and proper to qualify, define or limit the use of the guaranty legend as will best fulfill the purpose and operation of the Federal Food and Drugs Act of June 30, 1906.

Mr. Fred R. Drake, of Easton, Pa., former President of the National Wholesale Grocers' Association, read a paper on "National Standards and the Metric System," in which he stated the position of the National Wholesale Grocers' Association to be strongly in favor

of "the compulsory adoption of the metric system in simplification not only of interstate but of international commercial transactions. Dr. Reichmann, Superintendent of Weights and Measures of the State of New York, spoke on "Weights and Measures." Mr. Charles T. Terry spoke of the work of the Commissioners on Uniform State Laws; Miss Mary Wood spoke for the New York State Federation of Women's Clubs in a very clever and interesting address, and Mr. Porter, the President of the Shredded Wheat Co., also spoke on "Uniformity of Legislation," and Mr. T. P. Sullivan spoke of the work of the Illinois Food Commission.

The Convention then adopted a code of rules and regulations based upon that of the National Drug Trades Conference, and elected the following officers:

President—Louis Runkel, American Special Manufacturers' Association.

First Vice President—H. W. Hoops, National Confectioners' Association.

Second Vice President—Theo. F. Witemarsh, National Wholesale Grocers' Association.

Third Vice President—W. M. McCormick, Flavoring Extract Manufacturers' Association.

Fourth Vice President—C. F. Mueller, Jr., National Association of Macaroni and Noodle Manufacturers.

Secretary-Treasurer—John A. Green, National Retail Grocers' Association.

EXECUTIVE COMMITTEE.

The above officers and Mr. A. P. Husband, Millers' National Federation; William B. Harris, National Coffee Roasters' Association; Representative of Oyster Growers' and Dealers' Association of North America.

COMMITTEE ON COLLABORATION.

The above officers and Charles Wesley Dunn, American Specialty Manufacturers' Association; Helen Louise Johnson, Chairman, House Economics Department, General Federation of Women's Clubs; Mary Wood, Chairman of the Legislative Committees, respectively, of the New York State Federation of Women's Clubs and the New York City Federation of Women's Clubs.

The Convention then adjourned, subject to the call of the Chair.

<>

NATIONAL ASSOCIATION OF MANUFACTURERS OF MEDICINAL PRODUCTS.

The third annual meeting of the Association was called to order at 10:30 a. m. on Tuesday, February 10, at the Waldorf-Astoria Hotel, New York, by President Frank G. Ryan, of Detroit. After the calling of the roll, the reception of delegates from allied bodies occurred. Prof. Joseph P. Remington brought to the convention the greeting of the American Pharmaceutical Association in a very interesting and eloquent address. He said in part, that the American Pharmaceutical Association sent a warm greeting to her younger sister, and wished her "God speed," for both associations stood for the best in drugs and in medicines; both were a unit in desiring and standing firmly for "whatsoever things are true, whatsoever things are honest, whatsoever things are just, whatsoever things are pure, whatsoever things are lovely and whatsoever things are of good report." He spoke of the particular work of the A. Ph. A. in bringing into common fellowship the members of the different branches of the trade and said that its "very catholicism had been one of its greatest assets." The spirit of union and co-operation shown in the work of the National Drug Trade Conference, which was born from this intimate association augurs well for the future of pharmacy. He expressed the earnest hope that the two associations should co-operate to even a much greater extent to advance and uplift pharmacy.

Mr. Frank E. Holliday spoke for the National Wholesale Druggists' Association, Mr. Harry B. Thompson for the Proprietary Association of America and Mr. George C. Hall for the American Association of Pharmaceutical Chemists. President Ryan responded to these addresses, referring particularly to the address of Prof. Remington.

Dr. A. R. L. Dohme occupied the chair during the delivery of the president's address, which comprised a great range of subjects of interest to the members. He referred particularly to the recently enacted tariff and currency bills and said that with these great questions settled we might look forward with confidence to the prosperity of all legitimate business interests. The other subjects discussed in the address were the indefiniteness with which laws were worded, both Federal and State, and the consequent difficulty of their interpretation; the attempt to repeal the "variation clause" of the Food and Drugs Act; the Harrison Bill, which he strongly approved; the Supreme Court decision in regard to the regu-

lation of prices by the manufacturers, which he criticized; the laws, Federal and State, which were not in harmony; international trade-marks; one cent postage, which he favored, and the remission of dues to the members for the coming year.

The Secretary, Charles M. Woodruff, reported a membership of thirty for the association, a net gain of one, and discussed both national and state legislation very exhaustively. The report of the Committee on Legislation commended the veto of the Governor of Maine of an "Act relative to Misleading Advertisements"; discussed uniform drug legislation, insecticide legislation, and the "variation clause," stigmatizing the effort to repeal the latter as one whose object was to destroy manufacturing pharmacy. It condemned the Sabath bill (H. R. 4653), and said it "should receive the earnest opposition of every well-wisher for pharmaceutical justice and progress," and that it was time to call a halt in all drug legislation. It advised the passage of the following resolution:

"*Resolved*, That the National Association of Manufacturers of Medicinal Products earnestly recommend that no new laws relating to the subjects be enacted during the present year, unless it be by State Legislatures for the purpose of bringing the State law into conformity with the present Federal law."

The report of the delegates to the National Drug Trade Conference was a very complete review and analysis of the work done by that conference in the framing and the passage of the Harrison bill. It touched on bichloride of mercury legislation, price-protection, the mailing of poisons and the proposed repeal of the "variation clause."

The Executive Committee's report discussed the operation of the laws relating to the licensing of establishments manufacturing viruses, serums, toxins and analogous products and the proposed incorporation of the association. On Tuesday afternoon Prof. Remington addressed the convention on "The Present Status of the Pharmacopœia." He said in part, "The work is going on rapidly now and a large number of the pages of the work are ready to go to press." There never has been a revision in the U. S. P. which has been so thorough and which has been so open. The Food and Drugs Act has been the cause of renewed interest, and "when one's pocket-book is affected the talk becomes loud." He spoke of the impossibility of the introduction of copyrighted names into the Pharmacopœia and asked, "Will the manufacturers be willing to permit their preparations to be admitted to the Pharmacopœia, with tests for purity and identity under another name?" He spoke of the tests for volatile oils and said that plants at different seasons of the year, or gathered under different conditions of the weather and climate, produced products which vary greatly. Any one reading the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION will keep in touch with the new Pharmacopœia until the book is on the press. The question of including corrosive chloride of mercury tablets had been passed and some method should be devised for distinguishing them. He requested suggestions as to the form this should take. President Ryan spoke of the difficulty of wrapping these tablets and said that girls employed in such work were obliged to wear rubber gloves to prevent corrosion of the skin of the hands.

Ernest W. Bradford addressed the convention on the Kahn bill, now pending in Congress, which is intended for the protection of exhibitors from foreign countries at the San Francisco exhibition. This bill he criticized as defective and likely to make trouble for our people. He said that the Bulkley bill would eliminate the bad features of the Kahn bill.

The Executive Committee presented a memorial respecting the operation of the Federal serum laws and a resolution asking that the memorial be sent to the Secretaries of Agriculture and Treasury and to the Senate and the House of Representatives. The resolution was adopted by the convention.

Mr. Wayland Stearns called attention to the fact that Dr. Alsberg, the government chemist, had believed it possible that a board might be established to pass upon the labels and other printed matter of manufacturers, but that as yet nothing had developed along that line. In the State of Montana this was made the duty of the State Board of Health.

On Wednesday Mr. Samuel C. Henry addressed the convention as the representative of the N. A. R. D. In his address, after comparing the pharmaceutical products of a quarter century ago with those of today

much to the advantage of the latter, he sharply criticized the practice of selling supplies to dispensing physicians. This practice was not an injury alone to the druggists, but to the public and to the manufacturers also.

Resolutions were adopted urging the retention of "the variation clause" in future legislation of Federal and State Legislatures, approving the Harrison anti-narcotic bill, one-cent letter postage, the mailing of medicinal products containing poisons, and one giving approval and support to the National Drug Trade Conference. John F. Queeny, of the Monsanto Chemical Works, submitted a resolution concerning the ruling of the Referee Board in regard to the use of saccharin in food products and the resolution was adopted.

The following officers were elected:

President, Henry C. Lovis, of Seabury and Johnson, New York.

Vice-president, J. K. Lilly, of Eli Lilly & Co., Indianapolis.

Treasurer, Franklin Black, of Charles Pfizer & Co., N. Y.

Secretary, Charles M. Woodruff, Detroit, Michigan.

Executive Committee, A. R. L. Dohme, Adolph G. Rosengarten and the President, Secretary and Treasurer, *ex officio*.

The convention then adjourned *sine die*.

About seventy covers were laid at the Waldorf-Astoria on Wednesday evening for the annual banquet of the association. The after-dinner speakers were Hon. Herbert A. Metz, William F. Bennett, Judge Isaac F. Russell, and C. A. Mayo, the newly-elected President of the A. Ph. A. Ex-President Ryan acted as toastmaster.

<>

CONVENTION OF THE AMERICAN DRUGGISTS' SYNDICATE.

The eighth annual convention of the American Druggists' Syndicate was held at Madison Square Garden the week of January 19 last, and was attended by about four thousand members. Tuesday morning the convention was formally welcomed by Dr. William C. Anderson, who delivered a forceful address in which he spoke of the wonderful growth of the organization in the eight years of its life, and likened its achievement to that of the fathers of the republic in their struggle against unjust and inequitable conditions. He made a brilliant speech which was frequently interrupted with applause.

Mr. Henry W. Merritt responded to Dr. Anderson's address. In his remarks he strongly condemned those members who treacherously violated their agreements with the company, by which disloyalty the very life of the organization was threatened.

President Frailey, in his annual address, discussed the advantages of co-operation and said that abilities which were latent, were often stimulated into useful activity when occasion was presented for their use, and urged all to an active loyalty to the principles and policies of their co-operative organization in order that it might be developed into a combination of greater force and value.

The report of Secretary Goddard reviewed the work of the previous year and said that notwithstanding the general complaint of "dull business" it had been the "banner year" of A. D. S. history. He reviewed the accomplishments of the company, among the latter being the purchase of the real estate formerly occupied under lease, which comprised thirteen city lots in Brooklyn and the acquirement of a factory for the manufacture of absorbent cotton, sanitary napkins and goods of like nature. He advised also the purchase of the Blanchard Building, now occupied by the company under lease. He discussed the admission of other lines to the work of the company, and said it might find a profitable field in supplying grocers and stationers with their goods. While he favored such extension himself, he deferred to the opinion of the small number of the members (about 15 percent) who thought it unwise, and advised delay in deciding this matter. In an analysis of the condition of the drug trade, he said, there were forty-three thousand stores in the United States. Of these, nine thousand were owned by jobbers, ten thousand which were barely existing and one thousand controlled by the chain-store interests. Of the remaining twenty-three thousand the A. D. S. might expect to add to its stockholders not more than five or six thousand. There was need then of providing for new fields of work and suggested Canada, Central and South America as offering almost unlimited opportunities. He advised the establishment of a

Canadian laboratory. One of the most important of his recommendations was that the company should sell its supplies to physicians. He thought a business of five millions could be done by the adoption of this policy. He also suggested the manufacture of dental supplies by the company, and the acquirement by purchase of established patent medicines, instancing a certain proprietary children's cathartic, and analysing the value of such a purchase. He announced a favorable vote by the stockholders on the proposition to increase the capital of the company and recommended that it should be a $10,000,000 issue. He suggested the adoption of the premium certificate plan by the company, similar to the coupon plan of the United Cigar Co. The general session on Thursday authorized the increase of capital stock and the issue of premium coupons. At this meeting Mr. Goddard announced that it was probable that the A. D. S. members would attend the San Francisco exhibition in one of the company's own steamships. The following gentlemen were elected as directors for three years: C. H. Goddard, G. W. Luft, W. C. Anderson, Otto G. Hottinger, Sidney C. Yeomans. Dr. Anderson presented resolutions against the illegal sale and distribution of cocaine and heroin, which were adopted. The entertainment features were many and elaborate. They comprised theatre parties, banquets, and a grand ball on Friday evening. At a meeting of the new board of directors the following officers were chosen for the coming year: President, Dr. William C. Anderson, Brooklyn, N. Y.; Vice-Presidents, E. L. Weston, Syracuse, N. Y.; G. W. Stevens, Detroit, Mich.; G. N. Cherrington and E. W. Stucky; Secretary and Manager, C. H. Goddard; Treasurer, G. W. Luft.

<>

RESOLUTIONS ADOPTED BY THE NATIONAL DRUG TRADE CONFERENCE RESPECTING PROPOSED DRUG LEGISLATION.

The National Drug Trade Conference is composed of delegates from the national organizations of those engaged and interested in the manufacture, wholesaling and retailing of the hundreds of pharmaceuticals prescribed or ordered by physicians, dentists and veterinarians.

The constituent members are:

The American Pharmaceutical Association, a scientific rather than a commercial body, organized in 1851.

The National Association of Retail Druggists, now some fifteen years old, representing the commercial side of retail pharmacy.

The National Wholesale Druggists' Association, organized thirty-eight years ago for the mutual benefit of the wholesale drug trade.

The American Association of Pharmaceutical Chemists, composed of some fifty or more manufacturers, most of whom deal directly with the medical profession; and

The National Association of Manufacturers of Medicinal Products, embracing practically all of the larger pharmaceutical manufacturing houses having close relations with the drug trade.

Few people, even in professional and legislative circles, realize how many millions are invested in the manufacture of drugs in various forms that are not offered to the public and are not intended to reach the consumer except as dispensed upon the prescription of or administered by the doctor, the dentist or the veterinarian.

Legislation in the past has been entirely without regard to the lawful business of those thus represented in the National Drug Trade Conference; and much legislation now proposed ignores the effect it would have upon interests not more important to the manufacturers and dealers themselves than to the public.

For example: In the legislature of one of the states there was recently introduced an inspection bill intended to prevent the sale of "patent medicines" until they had been analyzed and found to contain medicinal ingredients that warranted whatever therapeutic claims had been made for them. As worded it required the manufacturer of any medicinal compound not recognized in the United States Pharmacopœia or National Formulary to pay an annual inspection fee of $25.00 for each such compound offered for sale in that state.

This meant nothing to the "patent medicine" proprietor, whose tax would have been $25.00 multiplied by the few (in most cases but one) products he offered to the public.

The varying views of the medical profession require purveyors to furnish thousands of combinations in fluid, solid, pill or tablet form that are not mentioned in the United

States Pharmacopœia or National Formulary. Such a law would have imposed an annual tax upon the pharmaceutical manufacturer of thousands of dollars. They could not have complied and would have been compelled to supply doctors, dentists and veterinarians in interstate commerce, which would have resulted in untold loss to the drug trade of that state.

The work of the National Drug Trade Conference has been and will continue to be constructive. This is assured by its connection with the Harrison bill, intended to prevent the practical nullification of the anti-narcotic laws of the several states by the natural operations of interstate commerce. The work was commended by Congressmen Harrison and Mann in the discussion resulting in the passage of the bill by the House June 26, 1913; and it may well be said that never was a more orderly attempt made to effect reasonable legislation efficient for the purpose of minimizing a crying evil without injuring lawful interests. The organization and work of the Conference in this connection may well be studied as something unique and highly commendable in constructive legislation.

It is therefore urged that the views respecting pending measures in Congress and some state legislatures expressed in the accompanying resolutions deserve careful consideration, and no hasty legislation amending or additive to existing drug law be enacted during the considerable period necessary for studying and harmonizing the various statutes which now lack desired uniformity; especially in features more immediately concerning interstate commerce.

Federal Food and Drugs Act Should not be Amended Prior to Publication of New Revisions of United States Pharmacopoeia and National Formulary.

WHEREAS, The Conference has been organized to secure uniformity in State and Federal laws relating to the adulteration and misbranding of drugs; and,

WHEREAS, Such uniformity is now being sought by the Commission on Uniform Laws and also by the American Bar Association; and,

WHEREAS, The American Bar Association has recommended that such uniformity be secured by the various States conforming their laws to the Federal act; and,

WHEREAS, Further hasty State and Federal legislation respecting the adulteration and misbranding of drugs will add to the confusion now existing; therefore, be it

Resolved, That this National Drug Trade Conference earnestly recommend that no new laws relating to the adulteration and misbranding of drugs be enacted by any State during the present session of its legislature, unless its purpose be to bring the law in conformity with the Federal law; and be it further

Resolved, That this Conference recommend that the Federal law should not be amended prior to the publication of the new revision of the United States Pharmacopœia and National Formulary, lest greater lack of uniformity be effected.

On Bi-Chloride of Mercury and Other Poison Legislation.

Resolved, That in recognition of the power of suggestion upon morbid and unbalanced minds, the National Drug Trade Conference does hereby urge upon the newspapers of the country that in reporting suicides and murders, details with respect to poisons, instruments, weapons or other methods used be, so far as possible, omitted.

WHEREAS, The United States Pharmacopœia and National Formulary, both standards of Federal and State food and drugs acts, are now in process of revision, and whereas, the Committee of Revision of the said volumes are considering for inclusion therein suitable regulations for forms, shapes, methods of packaging and labeling of tablets of bichloride of mercury and other dangerously toxic substances in order to plainly distinguish them from tablets which do not contain dangerously toxic substances; and,

WHEREAS, It is greatly desirable that all laws regulating the sale of poisonous tablets should be uniform and consistent with each other; therefore, be it

Resolved, That it is the opinion of the National Drug Trade Conference that Federal legislation upon the subject of tablets of mercury bichloride and other poisonous substances should be deferred until after the Revision Committee of the United States Pharmacopœia and National Formulary shall have made their reports in order to lessen the liability of conflict between Federal legislation and the provisions of the said United States Pharmacopœia and National Formulary.

Resolved, That it is the opinion of the National Drug Trade Conference that the adoption of suitable regulations for the shapes, colors, methods of packaging and labeling of tablets of bichloride of mercury for inclusion in the next revision of the United States Pharmacopœia or National Formulary is a matter of vital importance to the practice of pharmacy, the practice of medicine and the public health, and that we heartily recommend to the Committee of Revision of the United States Pharmacopœia and National Formulary that they take steps to include such regulations in such next revision of the Pharmacopœia; and be it further

Resolved, That this Conference tender to said Committee of Revision any assistance

it may be capable of rendering in the construction of such regulations; and be it further

Resolved, That any Federal legislation regulating the sale of mercury bichloride tablets should be confined to regulations respecting the form and style of packages in which such tablets are shipped in interstate commerce, and should not include the shipment of the chemical substance mercury bichloride as such.

Respecting Price Protection.

Resolved, That the Conference go on record as in favor of any constitutional and sound legislation that will enable the manufacturer or dealer of any article or brand of an article in which such manufacturer or dealer has an industrial right by patent, trade-mark, trade secret, copyright, design, or otherwise, to fix, maintain and protect the selling price thereof to the consumer, and thereby maintain the quality and reputation thereof, which is the inherent value to the public as well as to the manufacturer or dealer of an article called for and purchased under a trade name, or because of the features protected by any such industrial right; provided, such legislation does not open the way to the monopolization of the sale of any other article of the same kind or class which might otherwise be open to proper competition.

On Regulation Respecting Mailing of Poisons.

Resolved, That this Conference recommend to the postmaster general the adoption of the following regulation respecting the mailing of poisons in lieu of the one now ruling:

"Poisonous substances intended for internal or medicinal administration when packed in a metal container bearing the address of the sender, together with a label bearing the word 'Poison,' may be admitted to the mails under first-class postage rates."

Resolved, That the Committee on Revision of the United States Pharmacopœia be requested to consider the desirability of inserting in the forthcoming revision of the United States Pharmacopœia a section defining the word "Poison."

Action of the National Drug Trade Conference on the Elimination of the "Variation Provision" of the Food and Drugs Act of June 30, 1906.

NOTE.—The Food and Drugs Act of June 30, 1906, incorporates the following provision which, for convenience, is hereafter referred to as the "variation provision":

"Provided, That no drug defined in the United States Pharmacopœia or National Formulary shall be deemed to be adulterated under this provision if the standard of strength, quality or purity be plainly stated upon the bottle, box or other container thereof, although the standard may differ from that determined by the test laid down in the United States Pharmacopœia or National Formulary."

Dr. A. R. L. Dohme moved the adoption of the following resolution:

"Resolved, That it is the sense of this Conference that it is opposed to all legislation tending to eliminate the 'variation clause' from the food and drugs act."

Motion seconded.

Mr. Charles M. Woodruff stated that his association, the National Association of Manufacturers of Medicinal Products, was most vitally interested in this question and most earnestly opposed to any elimination of the "variation clause"; but that in all fairness such summary action as Dr. Dohme's resolution, if adopted, would effect should not be taken. He believed there were many who were honestly in favor of the absolute elimination of the "variation clause" to remedy some evils that had, perhaps, sprung up under it; but these advocates could be made to see the greater evils that would follow the elimination of the "variation clause"; and he further believed in constructive work, and that if the Conference got together with the representatives of such advocates some way of meeting the situation might be discovered, and a plan agreed upon that would save much legislative contention and long and expensive litigation to preserve industrial rights that would follow any law absolutely eliminating the "variation clause." He therefore moved the whole matter be referred to the Executive Committee for the purpose of effecting such conference.

Mr. James F. Finneran supported the argument of Mr. Woodruff in some interesting remarks, and seconded the motion, which was put to vote and unanimously carried.

Dr. M. I. Wilbert suggested that the Executive Committee of the Conference get in touch with the National Association of Food and Drug Commissioners.

<>

BRIEF IN BEHALF OF THE HUGHES-BACON BILLS.

Submitted to the House Committee on Military Affairs:

1. This bill provides for a slight increase in the salaries of the Army Hospital Corps, and it is believed it will be of great benefit to this service.

2. The pharmacists of the United States are behind this bill. It was introduced in the House and in the Senate by the friends of the pharmacists. It is indorsed

and asked for by all the big organizations of pharmacists, such as the American Pharmaceutical Association, the National Association of Retail Druggists, the National Association of Drug Clerks, and by every State Pharmaceutical Association throughout the Union. The pharmacists of the United States are prominent in every community, and are working hard in behalf of this legislation, and not one of them have received or are receiving or are to receive a single cent for his efforts in this matter. The men of the Army Hospital Corps are themselves in such a position that they can not do anything. They hold no commissions, and rules are so arbitrary in the army that unless a man holds a commission, no matter how near to the hearts of the people is the improvement of his service, he is not authorized to do anything but hold his tongue.

The pharmacists are all located in centers of population, large or small as the case may be, and their places of business are always nuclei around which centers the active interests of each community. They are professional men. They see the Hospital Corps entered by ignorant, incompetent men at $16 per month, and after many, many long years of service under commissioned medical officers who have never studied pharmacy, they are slowly advanced, the whole pharmaceutical service of the United States army being handled in this way; and there not being a man in it of a higher grade than sergeant first class.

3. In civil life, in every State in the Union, every man who practices pharmacy is required to work under a licensed pharmacist three or more years, or to be a graduate of a college of pharmacy, before he is even permitted to be examined for license, which he can only secure after having successfully passed a thorough examination before a board of five or more licensed pharmacists provided by the law of the State. The spirit of every State pharmacy law is being violated by present conditions in the United States Army Hospital Corps.

4. The total increase asked for is only $168,876, or less than the cost of the cigar stumps thrown into the gutters each day by the American people, and this increase is asked that the lives and the health of our people who may serve in a military capacity away from homes and friends may be better protected.

5. The Army Hospital Corps, in time of war, are in the midst of the battles and near the skirmish lines, binding up the spouting arteries and saving lives where the slightest delay means death, and bringing the wounded on stretchers to the field hospitals; they work shoulder to shoulder with the medical officers, who bear commissions and to whom all the glory goes for commendable work. In battle their casualties may run high; in 1905 the Surgeon General's report shows that in the percentages of killed and wounded their ratio was twice as great as that of the regular fighting line. Strenuous are their duties in time of battle. Such work comes occasionally, as war is desperate and irregular, but their work is also a steady, daily fight in time of peace, fighting not only ordinary diseases, but the most deadly contagious ones. They are ever on their firing line, fighting pestilence and disease not only during the day, but in the night time. The sick do not differentiate between daylight and darkness, unless it is that the vital forces seem lowest at the small hours before dawn, when more than usual watchfulness is needed.

6. The Army Hospital Corps, in addition to its work on the battle-field, its assistance in surgical work, its giving anesthetics, its taking care of the sick, its dispensing of dangerous drugs and poisons, its handling of delicate static, galvanic and X-ray electrical apparatus, it also has charge of the tremendously important work of the sanitary conditions of the camps, which, if not handled properly can, at any time, cause an outbreak of disease which will cost the country many valuable lives.

7. In our American wars we have always lost many, many more men by sickness and disease than by the missiles of the enemy. There was no exception to this dreadful condition of affairs in our recent Spanish-American war. The pharmacists of the United States were pleading with Congress for better pharmaceutical service in the army for several years before this war began, but conditions were not improved. The handling of medical supplies in that war was a disgrace to our American civilization. In the recent Russo-Japanese war, the Japanese lost far less men by sickness and disease than they did from missiles of the enemy. The pharmacists in their hospital corps bear commissions as second lieutenants, and were sent ahead and selected the camping places and analyzed all the drinking water supplies that proper sanitary conditions should be secured

as far as possible. Congress guards the right to commissions in the United States army so closely that there are no commissioned pharmacists in the Army Hospital Corps, and the salaries of the Hospital Corps are so meager that there is no inducement to pharmacists to enter the service, and pharmacists do not enter it. They do enter the United States Navy and Public Health Service, as these departments offer much better inducements.

8. The men who enter the Hospital Corps service have to start at $16 per month. After the second enlistment they are paid $19 per month. Then there is a $1 increase after each enlistment, and after many years in the service they may finally reach their highest grade of Sergeant First Class, with a salary of $50 per month and an increase of $4 after the second enlistment. This bill also asks for an increase of $3 per month for privates first class; for Sergeants, an increase of $6 per month; for Sergeants first class, $15 per month, and for the new grade of Sergeants Major, $75 per month. No increase in number is asked for any of the grades. The only additional men asked for are thirty in the new grade of Sergeants Major.

9. The new grade of Sergeants Major will make the service more attractive than at present, and with a salary of $75 for only thirty of the highest salaried men in the service, it does not begin to compare with the service in nearly all other civilized countries, as they give commissions to their pharmacists. In France, pharmacists rank as high as General of Brigade; in Germany they rank as high as Colonel, and even in Japan they are Second Lieutenants.

The National Guard in every State are under the same regulations as the United States army, but before the passage of the Dick bill such was not the case, and in every State steps were being taken to make the pharmacists of the National Guard Hospital Corps Second Lieutenants. This legislation was passed in one or two States and was all arranged and provided for to pass in a number of States at the next meetings of their legislatures, when the passage of the Dick bill made it necessary for the pharmacists of the United States to take up the matter with Congress.

11. Competent drug clerks all over the country draw salaries on the average of about $100 per month; many get much more. Competent drug clerks who are as good executive men as Sergeants first class are expected to be, and Sergeants Major would be required to be, readily obtain from $150 to $200 in civil life. There is not an institution teaching pharmacy in the United States which ever recommends the Army Hospital Corps to a single student as a pharmaceutical career.

12. The Army Hospital Corps, with such small salaries, is not as attractive to men as the other branches of the army service, and hence the corps has much difficulty in securing and retaining competent men. Dentists in the army, who take care of the teeth, get salaries of $150. The duties of pharmacists are matters of life and death, and in civil life their financial compensation is fully as great as that of the dentists. The army band musicians of the lowest, or third class, begin at $30 per month instead of $16 as in the Hospital Corps; and as grades and service increase, goes up to $99, against the highest grade in the Hospital Corps, which finally reaches $74. Even the men who look after the sick mules are better paid than those who look after the sick soldiers.

13. In behalf of better pharmaceutical service in the army, we appeal to you. In behalf of our great American citizenship, we ask for such improvement in salaries that not only pharmaceutical wrecks may be attracted to the service, but that men of some pharmaceutical competency can afford to enter it.

In behalf of the lives of American citizens we appeal to you.

As a matter of economical administration of the Government of the United States we know that you can but fully realize that improvement in the Army Hospital Corps means a saving of health and of lives, and that such saving of health and life means more continued happiness among our people and the saving of heavy pensions.

This is a non-political matter. Democrats and Republicans have united in the past in putting the pharmaceutical service in the United States Navy and in the United States Public Health Service in better shape, and have given commissions to the naval pharmacists. What we ask for the profession of pharmacy in the United States Army is very modest indeed.

The present condition of pharmacy in the United States Army is a national disgrace.

Respectfully submitted,

GEORGE F. PAYNE.

Editorial Notes and Announcements

JAMES H. BEAL, Editor.....Scio, Ohio

ERNEST C. MARSHALL, Associate Editor,
63 Clinton Building, Columbus, Ohio

All communications for insertion in the JOURNAL, or respecting advertising should be sent to the Editor.

The Association does not accept responsibility for the opinions of contributors. Offensive personalities must be avoided.

Under the rules of the Postoffice the JOURNAL can be regularly mailed only to bona-fide paid subscribers. Subscriptions and association dues should be sent to the Treasurer, H. M. Whelpley, 2342 Albion Place, St. Louis, Mo.

Requests for back numbers, and claims for missing numbers should be sent to the Editor.

Claims for missing numbers will not be allowed if sufficient notice has not been given of change of address, and in no case if received later than sixty days from the date of issue.

<>

REPRINTS.

If the request is made at the time copy is submitted, authors will be furnished with not to exceed 50 reprints, without cover, of papers accepted for publication in the JOURNAL.

Larger numbers of reprints will be supplied by the Stoneman Press Co. at the following prices, provided the order is received before the type has been distributed:

100 copies, 4 pages, no cover, $2.50, with cover, $4.50.

200 copies, 4 pages, no cover, $3.00, with cover, $5.50.

50 copies, 8 pages, no cover, $2.75, with cover, $4.50.

100 copies, 8 pages, no cover, $3.50, with cover, $5.00.

200 copies, 8 pages, no cover, $4.50, with cover, $6.50.

50 copies, 12 or 16 pages, no cover, $4.00, with cover, $5.50.

100 copies, 12 or 16 pages, no cover, $5.00, with cover, $6.50.

200 copies, 12 or 16 pages, no cover, $6.50, with cover, $8.00.

Orders for reprints may be sent either to the Editor, or to the Stoneman Press Co., Columbus, Ohio.

PROFESSOR RAUBENHEIMER RETIRES FROM EDITORIAL WORK.

Prof. Otto Raubenheimer has retired from the editorship of the Practical Druggist, and in future will devote himself to the practice of pharmacy and to his professorship in the College of Pharmacy of the University of New Jersey, and incidentally will continue to serve as a general bureau of information on matters pharmaceutical.

Like others of us, Prof. Raubenheimer has discovered that there is a limit to the quantity of work that can be disposed of in 24 hours.

<>

CHAIRMAN OF THE SCIENTIFIC SECTION REQUESTS PAPERS.

Chairman E. A. Ruddiman, of the Scientific Section, desires it to be understood that he will welcome papers appropriate to his Section from any member of the Association.

In order to permit the proper arrangement of the program and the selection of papers for discussion, it is desirable that the papers be sent to the Chairman not later than thirty days prior to the meeting.

Dr. Ruddiman's address is 101 24th Ave., S., Nashville, Tenn.

<>

WINNER OF THE BERGER PRIZE.

The Ernest Berger Prize consists of a nomination to membership in the A. Ph. A. and the first years' dues, and is awarded by Ernest Berger, of Tampa, Florida, to the candidate making the highest average in all branches before the Florida State Board of Pharmacy.

The latest winner of the prize is Mr. F. J. Collinson, of Gainesville, Fla. Mr. Collinson has our congratulations.

<>

"PRESCRIPTIONS 3000 YEARS OLD."

The third of the special lectures at the College of Pharmacy of the University of the State of New Jersey in Jersey City was delivered February 27th by Dr. Felix Von Oefele of New York City, who is a recognized world-wide authority on medicine and pharmacy of Old Egypt, Babyolnia and As-

syria. Dr. Oefele had received two stone tablets from Yale University containing cuniform inscriptions which are probably some of the oldest prescriptions in the world. In his lecture, the speaker gave an outline of medicine and pharmacy in Egypt and especially in Babylonia, which was the seat of culture and science in that early period. Dr. Oefele has made the study of cuniform script as well as that of hieratics and hieroglyphs a specialty, and showed a number of records dating back to 1500 B. C.

<>

ST. LOUIS COLLEGE MAKES CHANGES IN LIBRARY.

The St. Louis College of Pharmacy has placed its entire library in the Central Building of the St. Louis Public Library which is located very near the college building.

The college library has space to itself in the science reference room. The books and periodicals will remain the property of the college, but will be catalogued and cared for by the library as if the property of that institution.

Arrangements will be made for the students of the college to receive special drill in the use of pharmaceutical periodicals.

The pharmacists of St. Louis will be urged, through local organizations, to take advantage of the facilities which the library will offer under the new arrangements.

An effort will be made to complete files of the various pharmaceutical periodicals and also to bind the current volumes as they are completed.

<>

DRUGGISTS' CIRCULAR CHANGES EDITORS.

Owing to an affection of the eyes, of constantly increasing severity, Frances B. Hays has been compelled to retire from the editorship of the Druggists' Circular, a position which he has occupied and adorned for many years.

For the present, he will reside at his old home, Oxford, N. C.

Dr. Harry Vin Arny, Professor of Chemistry at the New York College of Pharmacy, has been selected to succeed Mr. Hays as Managing Editor of The Circular.

While we regret the enforced retirement of Mr. Hays, it is a pleasure to know that his work has fallen into the capable hands of Dr. Arny, who has a host of admirers throughout the country, and especially in Ohio, where he was formerly one of the most efficient workers in the pharmaceutical field.

<>

THE QUALITY OF PRESCRIPTIONS.

Dr. Bernard Fantus, of the College of Medicine, University of Illinois, Chicago, lately undertook an investigation of this subject in the form of a questionaire. Various pharmacists co-operated by the examination of one hundred consecutive prescriptions each, the total number examined being 10,000.

The results, in percentages, reported by Dr. Fantus are as follows:

To the question, Has the quality of prescription writing improved or deteriorated within the last ten years? 55 percent reported an improvement, and 20 percent a deterioration.

Thirty-six percent. of the prescriptions were written in English, 18 percent were in poor Latin, and 4 percent were barely legible or almost illegible.

Forty-six percent of the prescriptions called for less than three ingredients each and 11 percent for more than five ingredients each; 24 percent were for proprietary remedies, and 11 percent for other specified preparations; 2 percent contained incompatibilities, and 1 percent overdoses and errors.

An extremely small percent of the prescriptions were written in the metric system.

<>

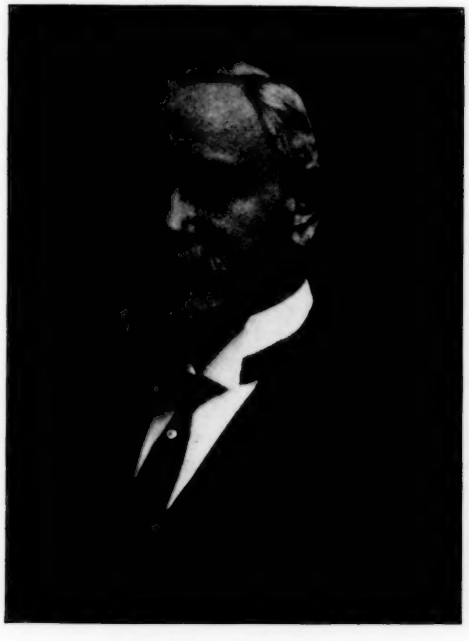
DR. WM. C. ALPERS UNITES WITH CLEVELAND SCHOOL OF PHARMACY.

Dr. William C. Alpers, Chairman of the Historical Section, and well known to the drug trade throughout the United States, has accepted the position of Dean and Professor of Pharmacy of the Cleveland School of Pharmacy, Department of Western Reserve University.

Dr. Alpers is exceedingly well fitted for the position, and all members of the Association will wish him abundant success.

He was born at Hanover, Germany, attended the High School in Hanöver, then the School of Technology and later the University of Gottingen, studying Natural Sciences and Mathematics. Came to America and en-

gaged in teaching for nearly 10 years in the St. Matthews' Academy, New York. Attended the New York College of Pharmacy and later took a post-graduate course in chemistry at the University of New York. Was granted the degree of doctor of Science in Chemistry. In 1881 he opened a Pharmacy in Bayonne, N. J., where he staid till 1898. Joined the N. J. State Pharmaceutical Society and was President in 1896, also a member of the State Board of Pharmacy from 1893-98. Became member of the American Pharmaceutical Association in 1890, was Chairman of the Scientific Section in 1896, and Chairman of the Section on Pharmacy and Dispensing in 1905; is now Chairman of the Historical Section, was first Vice President in 1903. After leaving Bayonne, N. J., Dr. Alpers was for a number of years Manager of the Merck Pharmacy, N. Y., and afterwards conducted the Alpers Pharmacy on Broadway and 31st street. He withdrew from active business in 1905. In 1900 he was elected on the Executive Committee of the Revision of the Pharmacopœia and is Chairman of the Sub-Committee on Syrups and Elixirs. Was trustee of the New York College of Pharmacy for three terms till his removal to Cleveland. Contributed for many years to pharmaceutical and chemical literature, and is now editor of the Apotheker-Zeitung, N. Y. Published many pamphlets and two books, "The Medicinal Plants of Staten Island," and "The Pharmacist at Work," Lippincott, 1896. Was appointed Professor of Pharmacy and Dean of the Cleveland School of Pharmacy in 1914.



DR. WM. C. ALPERS.

Dr. Alpers was married to Miss Bertha Guden, who died in 1902, leaving six children, of whom, William H. and Otto, are pharmacists. He married again in May, 1913.

<>

REQUEST FROM THE HISTORICAL SECTION.

To Members of the American Pharmaceutical Association:

Your officers of the Section on Historical Pharmacy issue this appeal to you for contributions to that Section of papers dealing with the history of American pharmacy—personal, general or of some special feature of historic value. It is especially desired that papers on the early history of pharmacy in Michigan and the Lake states be contributed by those members who have an intimate knowledge of the growth and development of pharmacy and pharmaceutical manufacturing in these states so that the history of the past may be adequately preserved. Detroit is the home of some of the largest manufacturing pharmaceutical firms and should be rich in history of the development of pharmacy and of the origin, study and perfection of many staple pharmaceutical products. Chicago is nearby enough to furnish interesting pharmaceutical history, so are many other cities of the states bordering on the Great Lakes. There are surely many old members who can contribute valuable historical data from their memories and enough younger members who have access to records and papers to make the Detroit meeting one of the richest in historical contributions to the archives of the Association.

It is the intention of the Historical Section to make a special effort to gather historical matter relating to that section of the country where our annual meetings are held. If those members who have helped to make pharmaceutical history would write up their recollections and experiences as contributions to the work of the Association, in a very few years the American Pharmaceutical Association would have in its archives invaluable

data for the future writer of the history of American pharmacy. Papers need not be lengthy nor confined to any one topic, just so that they aid in setting forth the history of some phase of pharmaceutical life and activity.

Your co-operation is earnestly asked in this plan for gathering historical material and its success depends entirely upon a generous response by members to this appeal. However, papers of historic value are cordially invited from members in every section of the country to round out the work of the Section on Historic Pharmacy as a complete presentation of historic data bearing on pharmacy and pharmacists in America. The time to begin writing your paper is *now*. Contributions may be sent either to the Chairman of the Section or to the Secretary, as may be most convenient, the only further favor asked being that they be sent as early as possible so that a programme can be made up for the Section's meetings.

Hoping for a generous response to the Association's request and assuring its thanks in advance to contributors,

Sincerely yours,

WILLIAM C. ALPERS, Chairman.

F. T. GORDON, Chairman.

Proceedings of the Local Branches

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—By-Laws, Chapter X, Art. III.

Reports of the meetings of the Local Branches should be mailed to the editor on the day following the meeting, if possible. Minutes should be *plainly* written, or typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.

<>

SAINT LOUIS BRANCH.

(February Meeting.)

The Saint Louis Branch of the American Pharmaceutical Association held a regular meeting in the Saint Louis College of Pharmacy, 2110 Locust street, Tuesday evening, February 10, 1914, with President Wilkerson presiding. After the minutes of the previous meeting were read and approved and preliminary matters disposed of, the program was taken up.

Mr. Arthur C. Schulte read a paper entitled "Windows and Window Dressing," which was printed in full in the March issue of THE JOURNAL. Mr. Schulte's paper was discussed by J. A. Wilkerson, Dr. H. M. Whelpley, O. J. Cloughly, A. W. Pauley, C. T. Buehler, Professor Francis Hemm, Theodore Schwerdtmann, J. W. Mackelden, J. C. Bailey and Julius C. Hoester.

The subject for the next meeting will be a discussion of shorter names and synonyms for some U. S. P. and N. F. preparations.

JULIUS C. HOESTER, Secretary.

<>

NEW YORK BRANCH.

(February Meeting.)

A regular meeting of the New York Branch of the American Pharmaceutical Association was held on the evening of February 12, 1914. President H. V. Arny presided.

The minutes of the previous meeting were read and approved. The treasurer's report was also read and approved.

The Membership Committee submitted the names of two applicants for membership in the parent association.

As Professor W. C. Anderson, chairman of the Committee on Legislation, was absent, Mr. Roemer reported for the committee, calling attention to the provisions of the Town-Blylan anti-narcotic bill, which he indicated if enacted would restrict the sale of all narcotics. He also referred to the Blauvelt Senate Bill No. 5, which confines the sale of bichloride of mercury to prescriptions. The bill also indicates that prescriptions are not to be repeated and no copies of prescriptions are to be given. The drug must be in cubes and colored green.

Dr. Geo. C. Diekman, chairman of the Committee on the Progress of Pharmacy, called attention to the adulteration of oleic acid with paraffin and fish oils. He also gave a method for the detection of oil of sesame in olive oil, an assay method of morphine in tablets and called attention to a false nux vomica, which contained no strychnine, as well as a false buchu. He also reported on a

sensitive reaction for bromine and on the water absorbing capacity of a mixture of oil of theobroma and yellow wax. The report was discussed by Messrs McElhenie, Raubenheimer, Horstmann and Mayer.

The Secretary announced that he had carried out the instructions given him at the previous meeting by writing the Madison Square Garden Drug and Chemical Exposition that the New York Branch of the American Pharmaceutical Association would not participate in their exposition and that the Madison Square Garden Drug and Chemical Exposition had acted without authority when indicating by advertisement and otherwise that the New York Branch of the American Pharmaceutical Association would co-operate and at the same time indicated that the Secretary of the above named exposition company had acknowledged the letter and complied with the Association's demands, which were to the effect that they immediately discontinue using the Association's name in connection with their exposition.

Dr. Jacob Diner indicated that this incident should prove a valuable lesson to the Association and its members. He stated that individual members should be careful not to involve the Association in commercial enterprises.

John Roemer presented a paper on "Value of Present Methods of Water Analysis in Relation to Disease." He called attention to its many uses as in commerce, manufacture, fisheries, its value and necessity to the existence of man, to the diversity of mineral waters, the disadvantage of hard water in manufacturing, the significance of the purity of our drinking water. The speaker emphasized the extreme sensibility of water tests, both chemical and bacteriological. He indicated that the chemical methods were being supplanted by the bacteriological methods and questioned if the latter gave the clue as to the contamination of water with the typhoid germ; since the test was for the bacterium coli communis rather than for the typhoid bacterium. Mr. Roemer referred to two general classes of water, rain water and surface water, and stated that the organic matter in water was of vital concern to the analysis. He described the ammonia and chlorine determination processes. In analyzing water its source should be considered, stated the speaker.

A discussion followed in which Messrs Diner, Mayer, Niece and Horstmann participated.

Mr. Roemer was formally thanked by the Branch. The meeting then adjourned.

FRANK L. MCCARTNEY, Secretary.

<>

CITY OF WASHINGTON BRANCH.

The regular February meeting of the City of Washington Branch of the American Pharmaceutical Association was held Wednesday, February 18, 1914, at the National College of Pharmacy, George Washington University, 808 I street, Northwest, Washington, D. C.

More than thirty members and guests were present at 8:15 when President W. S. Richardson called the meeting to order, and this number was considerably augmented by late arrivals.

The reading of the minutes of the previous meeting was dispensed with, and as no new business was presented, Mr. Richardson introduced Mr. Martin I. Wilbert, of the Hygienic Laboratory, Public Health Service, whose subject was announced as "What the American Medical Association has Done, and What the American Pharmaceutical Association Proposes to do, with Regard to the Patent Medicine Problem."

Mr. Wilbert entered into a general and most enthusiastic discussion of his subject, outlining the history of the growth of the patent medicine business, the efforts of the American Pharmaceutical Association to curb this growth, the efforts of the press to control it, and the manner in which the American Medical Association has dealt with it.

It was pointed out that the American Pharmaceutical Association had, as early as 1853, recognized the evil of the growing patent medicine business and had then adopted resolutions for its suppression. Each passing ten years seemed to revive interest in this subject, but nothing more definite than a number of good resolutions has resulted to the present time.

Judging from the manner of appointment of the present committee, the conditions leading up to its selection, and the attitude of the Association, however, it was stated that it would be unfair to believe the present interest temporary, but, on the contrary, every indication points to the accomplishment of good.

The conditions under which the American

Medical Association undertook its work against patent medicines, and how this work is being carried on, Mr. Wilbert elaborately detailed. A number of the publications of that Association to enlighten the public in this crusade were exhibited and discussed. These were passed around for inspection.

Mr. S. L. Hilton, Mr. J. Leyden White, Dr. F. B. Campbell, Dr. Henry E. Kalusowski, and a number of others feelingly praised the American Medical Association for its stand and pledged themselves to heartily support our Association in its combat against this evil.

The Secretary, Henry B. Floyd, then read a paper covering his observations with regard to the laboratory equipment of local pharmacies. The scarcity of proper reference works, the inaccuracy of scales, weights, graduates, and containers, and the utter lack of sufficient laboratory equipment, was lamented, and the belief was expressed that the only remedy for these conditions rests in a new pharmacy law, by pharmacists, and for pharmacists. Numerous inaccuracies which have caused unthinking, but wholly conscientious, druggists, to be haled into court, were cited, and the avoidance of similar mistakes outlined.

A very vigorous discussion, lasting more than an hour and a half, followed, when the meeting adjourned.

The March meeting will be held March 18, at the College of Pharmacy.

HENRY B. FLOYD, Secretary.

<>

DENVER BRANCH.

The February meeting of the Denver Branch of the A. Ph. A. was held Tuesday evening, February 17th, at the Albany Hotel, the usual dinner preceding the meeting. It had been planned to hold the meeting at Hover's this month and officially open our library, to be known as the Colorado Pharmaceutical Library, but some delay in a shipment of books for the library made it necessary to postpone this event to the March meeting.

Messrs. A. W. Clark, H. C. Washburn, R. H. McKenzie, C. J. Clayton, C. D. Charles, W. T. Hover, S. T. Hensel, L. A. Jeancon, S. T. Kostitch, L. L. Alkire, C. H. Skinner, A. Swoboda, B. F. Seymour, S. L. Bresler, W. W. Grant, W. A. Hover and F. W. Nitardy gathered at the hotel about 6:45 p. m. The minutes of the January meeting were read and approved. The following resolution was offered:

"*Be it Resolved,* By the Denver Branch of the American Pharmaceutical Association in regular meeting assembled, that we most respectfully urge the speedy passage by Congress of the Federal anti-narcotic measure, H. R. 6282, known as the Harrison bill."

(Signed) W. A. HOVER, President.
F. W. NITARDY, Secretary.

Mr. A. W. Clark moved it be adopted and a copy forwarded to the United States senators from Colorado. The motion was seconded and carried.

The Branch membership recommendation made by the Secretary in his report at the last meeting was then taken up, the Secretary reading the section of the report referring to the matter, and after short discussion, Mr. Clark moved that the names of the members in question be submitted to the Membership Committee for action, and that the Secretary be guided by their report. The motion carried.

Mr. Nitardy then proposed the creation of an associate membership in the Branch, briefly explaining his objects. A lively discussion ensued, in which considerable opposition was voiced, seemingly on account of a misunderstanding regarding the scope of the proposed associate memberships. On further explanation and discussion, it was decided to create an honorary instead of associate membership, and on motion of Mr. Bresler, Messrs. R. S. Hiltner, chief of the U. S. Food and Drug Inspection Laboratory of Denver, and S. T. Kostitch, pioneer druggist of Denver, were proposed as honorary members. Mr. Hover suggested the inclusion of Dr. William W. Grant in this list and the motion so amended was carried, Messrs. Hiltner, Kostitch and Grant being declared honorary members of the Branch.

President Hover then announced the appointment of the following committees:

Membership Committee—L. L. Alkire, Chairman; L. A. Jeancon, W. T. Hover.

Program Committee—S. L. Bresler, Chairman; L. A. Jeancon, Victor Lagasse.

Committee on Education—Prof. James Seymour, Chairman; S. T. Hensel, Prof. H. C. Washburn.

Committee on Qualifications for Registered Pharmacists—A. W. Clark, Chairman; Emmett Powers, F. J. Lord.

Library Committee—F. W. Nitardy, Chairman; Prof. James Seymour, L. L. Alkire.

Committee on Fraternal Relations—A. W. Clark, Chairman; C. J. Clayton, F. J. Lord.

Committee on Permanent Quarters—Chas. J. Clayton, Chairman; S. L. Bresler, Prof. H. C. Washburn, Hugh SeCheverell.

President Hover then called on Prof. Washburn of Boulder for a few remarks. Prof. Washburn responded with a brief talk touching on the progress of the school of pharmacy and the outlook for the future. Prof. Washburn stated that in the first year of its existence the school had two students, the second year 11 and this year 23. Certainly an excellent showing.

President Hover, before introducing the guest of the evening, stated that he wanted to say a word in regard to the narcotic evil and its remedy and hoped that Dr. Grant would also touch on the subject in his address. He expressed the belief that with the proper co-operation between the medical and pharmaceutical societies and the city authorities the evil could be practically eliminated providing that the city would take steps to care for and treat the unfortunates now addicted to the habit. He believed a policy of this kind, while being at first an expense to the city, would in time mean a saving to the taxpayer, by eliminating a large element that now fills our jails and hospitals and at the same time relieving much suffering and doing humanity a real service. He then introduced Dr. William W. Grant, speaker and guest of the evening.

Dr. Grant responded with an eloquent address, touching at length on the development and objects of the American Medical Association, with special reference to its educational work, its Journal and its Council on Pharmacy and Chemistry. He also touched on the faults of certain members in both professions and some of the unethical practices which prevail. He believed that in time these would be eradicated. His association was working strongly towards that end and with the active co-operation of the pharmaceutical profession more could be accomplished. In regard to the narcotic evil he said he believed his association would be glad to co-operate with our Branch and the combined forces might be able to induce the city to take some action in the right direction. In regard to the pharmacist, he said he had always honored him and be believed that as a whole our profession was made up of men just as honest, high-minded and sincere in purpose as those of the medical profession. He felt at home amongst them and enjoyed their company.

On closing, President Hover thanked Dr. Grant for his instructive talk, which he felt, would be an inspiration to all. He then asked the opinion of various members on the question of having a committee appointed to meet with or co-operate with the County Medical Society or a committee thereof, in an effort to bring the best influences of the medical and pharmaceutical professions to bear on the city authorities with the object of eradicating the narcotic evil and caring for its present victims.

Messrs. Clark, Clayton, McKenzie, Swoboda and Bresler expressed themselves on the subject, whereupon it was decided to delegate this work to the Committee on Fraternal Relations.

The discussion then turned to a controversy between Parke, Davis & Co. and Dr. Puckner of the Council on Chemistry and Pharmacy of the A. M. A. The majority opinion seemed to favor Dr. Puckner. Elixir Lactopeptin and similar preparations of questionable merit were then discussed. The discussion brought out the opinion that while such products were admitted to be of no therapeutic value, their only service being as a vehicle, their use and demand on prescriptions was nevertheless increasing. The hour being late the meeting adjourned.

F. W. NITARDY, Secretary.

<>

NASHVILLE BRANCH.

On March 12th the regular meeting of the Nashville Branch was held at Furman Hall, Vanderbilt, with Dr. J. O. Burge presiding.

The Committee on A. Ph. A. Home reported that the resolutions adopted by the branch at the last meeting had been presented to the Council for consideration, with the endorsement of the business organizations of Nashville.

The members of the Branch congratulated Dr. J. H. Rogoff on his return from Washington with his bride. His marriage to Miss Fannie Harned took place in Washington, D. C., on February 22d. The ceremony, at the bride's home, being performed by the groom's father.

After a tour of Northern and Eastern cities

Dr. and Mrs. Rogoff came to Nashville, Tenn., their future home.

The bride is the daughter of one of Washington's most prominent citizens. Dr. Rogoff, who has owned several drug stores in Cleveland, O., is now Professor of Pharmacology at Vanderbilt University, Medical Dept.

Dr. E. A. Ruddiman entertained the Branch with the presentation of a number of difficult prescriptions, with criticisms which were freely discussed, a few of which follow:

℞ Sol. cocaine hyd. 4%.
Sol. adrenalin hyd. aa 1 dram.
Water, q. s., ad 1 oz.

M. Turns red and precipitates after a time. No explanation.

℞ Tr. iron ½ oz.
Ichthyol 5 drams.
Elix. lact. pepsin q. s., 3 fl. oz.

M. A brown, sticky mass of iron ichthyol sulphonate is formed.

℞ Pot. iod.
Aspirin.
Sod. bicarb.
Tr. iron, aa 5 drams.
Water q. s., 4 fl. oz.

M. Potassium iodide and the tincture of iron liberate free iodine and form some hydriodic acid. The sodium bicarbonate precipitates some ferric hydrate; a fruity odor was observed. CO_2 is liberated.

℞ Tr. card. co. 1 dram.
Sat. sol. sod. sulph. 4 oz.

M. Half of bottle is solid mass. Alcohol in the tincture throws out sod. sulph.

℞ Sod. phos. 2 oz.
Pot. bicarb. 2 drams.

M. Mixture becomes damp.

℞ Acid salicyl. 1½ dr.
Pot. iod. 4 drams.
Water, q. s., 3 oz.

M. Hydriodic acid is formed and iodine is liberated.

W. R. WHITE, Secretary.

<>

NORTHWESTERN BRANCH.

The February meeting of the Northwestern Branch of the A. Ph. A. was held jointly with the Scientific Section of the Minnesota State Pharmaceutical Association in convention assembled at the College of Pharmacy of the University of Minnesota, on February 19, 1914.

After spending three-quarters of an hour inspecting the new building the joint meeting was called to order at 9:45 a. m. by Dean Wulling, chairman of the Scientific Section of the State Association.

Part 1 of the program was completed at the morning session, after which the joint meting adjourned and the N. W. Branch convened at once to consider the report of the nominating committee for officers for the ensuing year. The following having been nominated were unanimously elected:

President, Mr. C. T. Heller, St. Paul.

Vice-President, Mr. A. D. Thompson, Minneapolis.

Secretary and Treasurer, Mr. E. L. Newcomb, Minneapolis.

Executive Committee, Mr. A. J. Kline, Minneapolis; Mr. F. M. Parker, St. Paul; Mr. W. S. Smetana, Hopkins; Mr. F. A. U. Smith, St. Paul.

Representative to the Council of the A. Ph. A. (for three years), Dean F. J. Wulling, Minneapolis.

Immediately after lunch an hour or more was spent in examining the various educational and scientific exhibits on display, including much of the new equipment of the college.

At 2 p. m. the Scientific Section of the State Association was called to order by Chairman Wulling and brief informal exercises dedicatory of the new buildings were held. At 4 p. m. the joint meeting again convened and part 2 of the scientific program carried out.

The program of the morning and afternoon joint sessions was as follows:

Morning Session.

1. Protect the Interests of the Unfortunate —Mr. John Nielson.
2. The Advantage of Dispensary Practice to Students of Pharmacy—Mr. Oscar J. Blosmo.
3. A New Lime Water Apparatus—Prof. G. Bachman.
4. A Practical Strainer and a Bottle Filler Contrivance—Mr. W. A. Frost.
5. Recreation for Pharmacists—Mr. A. J. Kline.
6. Importance of Food and Drug Chemistry in the U. S.—Mr. C. H. Rogers.
7. Should the Drug Store Experience now Required of Graduates be Dropped?—Mr. H. W. Rietzke.

8. Vegetable Drugs of the Future—Prof. E. L. Newcomb.

9. Historical—Dean F. J. Wulling.

Afternoon Session.

1. Specifications for Buying Chemicals and Drugs—Mr. C. R. Noyes.

2. Some Aromatic Chemicals—Dr. J. S. Brewer.

3. Reports of the College and the Building Committees—Mr. A. J. Kline.

In the first paper presented at the morning session Mr. Nielson made a plea for the better care of those unfortunates who have become addicted to the use of narcotics. He stated he believed that the present narcotic laws in the various large cities and the states were being enforced to a large degree and that the result had been to drive those addicted to the use of habit-forming drugs from the larger cities to the rural districts and hence the subject of narcotic legislation is fast becoming a matter of prime importance to pharmacists of the smaller cities and country districts. Mr. Nielson felt that a record should be kept by pharmacists and physicians of those addicted to the use of narcotic drugs and that the future care and treatment of such persons should be placed in the hands of the members of the State Board of Health. Attention was called to the danger of abruptly cutting off the supply of narcotics from those who are accustomed to their continual use.

Mr. O. J. Blosmo, instructor in charge of the hospital and dispensary drug rooms of the University of Minnesota, stated that both theoretical and practical training are necessary for the acquirement of skill and efficiency in pharmacy. Practical training should consist in part of practice in the manufacturing and dispensing of drugs, preparations and prescriptions to be taken by the patient. Dispensary practice by pharmacy students brings them in close touch with physicians, enabling the students to keep abreast of the rapid advances in the medical profession. From personal experiences Mr. Blosmo felt that a new era in pharmacy had been entered, physicians' prescriptions are written more specifically, fewer patents and proprietaries are used and doctors are more particular in respect to the quality and standard of drugs. Statistics were presented to show the large number of physicians with whom the dispensary student comes in contact and also the number and variety of prescriptions, thus affording the widest possible range of experience. Manufacturing by the pharmacist is emphasized in dispensary practice and the small amount of apparatus usually required is pointed out, as well as the small amount of time required and the financial benefits to be derived. Dispensary practice affords many valuable opportunities which cannot be obtained in other college courses and such training should constitute a part of the instruction given by all colleges of pharmacy.

Prof. Bachman confined his remarks chiefly to the "Preparation and Preservation of Lime Water." From personal observations he stated that he had come to the conclusion that lime water was the most poorly prepared and preserved preparation the pharmacist makes. He stated he knew of a druggist who made his lime water by throwing a pound or more of commercial lime into a two-gallon bottle, filling with tap water and dispensing this for lime water; the bottle was not even provided with a syphon. To further illustrate the lack of care in making this preparation, Prof. Bachman called attention to the pharmacist who makes his lime water when called for, by throwing a tablet of lime into an eight-ounce or pint bottle of water, shaking and selling this cloudy mixture. He further stated that no matter how carefully the selection of lime is made or how well the lime water is prepared, if it is kept in an ordinary container it would soon deteriorate, due to the CO_2 gas in the air precipitating the calcium hydroxide, thus rendering the lime water worthless. A lime water apparatus made according to the drawings of Mr. F. W. Nitardy, of Denver, was fully demonstrated and recommended to the members of the Association as a practical outfit which would solve the lime water problem.

The paper by Mr. W. A. Frost on "A Practical Strainer and a Bottle Filler Contrivance" was listened to with exceptional interest. The use of each apparatus was demonstrated and the speaker stated he had found the appliances of great practical value. The strainer is especially suitable for the rapid straining of thick mucilaginous substances such as quince jelly, elm or flax seed mucilage. This apparatus consists of a rack about twenty inches in height, having a horizontal top provided with an opening in the

center to receive a conical glass percolator of from one and one-half to two gallons capacity. Over the lower orifice of the percolator a muslin bag with a capacity of about a quart is tightly tied. The substance to be strained is poured into the percolator and forced through the muslin bag by pressure with the hands. The advantages of the apparatus were stated to consist of rapid straining with a minimum loss, and a process whereby the preparation is to a large extent protected from contamination by dust, etc. The bottle filling device consisted of an ordinary spring stoppered funnel which was placed in the straining rack above described and over which was inverted the container with the liquid to be bottled. A second rack placed above the first held the inverted bottle in position. By this arrangement a large number of bottles of almost any size could be rapidly and accurately filled.

In discussing "Recreation for Pharmacists," Mr. Kline called attention to a number of activities from which not only pleasure but also profit may be derived. Among the diversions which Mr. Kline had found to be enjoyable and educational, he mentioned the culture of flowers, vegetables, mushrooms and poultry. From the last two hobbies mentioned the speaker stated that he derived a fair margin of profit in addition to the recreation.

Mr. Rogers, in his paper on "The Importance of Food and Drug Chemistry in the United States," pointed out the changes that had been wrought in articles of food and also in the drug trade since June, 1906. He also showed that food and drug chemistry had a direct bearing on the lives and happiness of American citizens. Several instances of note were cited to illustrate how beneficial had been the result of the application of this branch of chemistry. Attention was called to the myriad of remedies which have not as yet been taken up for analysis by the Bureau of Chemistry. The analyses of a number of familiar articles were given, which showed them to be fake preparations. In conclusion, Mr. Rogers heartily endorsed the movement to place upon the statute books of Minnesota an up-to-date pure drug law.

"Should the Drug Store Experience now Required of Graduates be Dropped?" was briefly discussed by Mr. Rietzke. He pointed out the wonderful development of practical courses of instruction in accredited colleges of pharmacy and the woeful lack of professional experience which the apprentice now receives in many drug stores. The speaker felt, however, that the drug store experience is a most valuable asset, especially when received in a store which reflects the true progress of pharmacy. He believed that pharmacists should give more attention to instructing the apprentice, that the embryonic pharmacist should be encouraged to secure the very best pharmaceutical education possible and that time and help should be offered the student whenever possible.

Prof. Newcomb, in speaking of "Vegetable Drugs of the Future," called attention to the rapid changes for better drugs that have taken place during the last few years. In the past little attention has been paid to the proper methods of collection, packing, transportation, storage, etc., and even today little is known concerning the effects of variations in these factors upon the medicinal value of drugs. Many drugs today are packed in more suitable containers than heretofore used. The nature of the medicinally active principles of drugs was discussed and numerous references were given to show that many of these substances as they occur in the plant are quite unstable compounds and that changes in their composition brought about by fermentation, oxidation, enzyme action, etc., result in products of variable pharmacologic activity. These changes may or may not be desirable. In the proper drying of some drugs it was pointed out that there appears to be a fixation of the medicinally active principles with the protoplasmic constituents of the plant, and that such drugs not only yield to extraction processes readily, but that when preparations made from these are administered, absorption takes place more rapidly than from preparations not so prepared. Tables were presented showing the comparative action of various samples of digitalis as determined by the guinea pig and frog-heart methods, and it was shown that the absorption of the preparation made from carefully collected and dried leaves took place in about 25 percent less time than in any other preparation, and that the total action was above that of any commercial drug tested. Prof. Newcomb stated that if pharmacists are to prepare U. S. P. and N. F. preparations which will yield the action the physician has a right to expect, attention must be paid to all factors which affect even

the innermost nature of the drug. It was suggested that pharmacists give special attention to the twenty-two drugs unanimously passed upon by the U. S. P. IX Sub-committee on Scope. An exhibit of these twenty-two drugs was provided and mention made of the evident good quality of a number. The results of a large amount of work on the drying and packing of drugs was presented and the specimens exhibited.

Dean Wulling's paper dealt briefly with the history of the College of Pharmacy of the University of Minnesota, for whose new building and equipment the legislature and regents appropriated nearly $110,000 a few years ago. The paper was a preliminary to the pharmacy building exercises which took place early in the afternoon. The paper was supplemented in the later afternoon scientific program by the usual annual college historical paper.

In speaking on "Specifications for Drugs and Chemicals for Medicinal Use," Mr. C. R. Noyes called attention to the numerous grades and varieties of drugs and chemicals which are used for technical purposes, where the requirements are frequently quite different from that of medicine. On account of the great multiplicity of forms and grades of drugs and chemicals, pharmacists should specify definitely what they desire. The speaker felt that drugs of inferior quality for medicinal purposes sometimes find their way to the retail pharmacist, not on account of the desire for cheap products, but through lack of the use of proper U. S. P. names and specifications. The best and safest thing for the retail pharmacist to do when ordering pharmacopœial articles is to specify U. S. P. on every article which is included in that book. Druggists should be cautious about dispensing for medicinal purposes articles bearing the label "for technical use only," and the "so-called" "chemically pure" articles represent a "super-excellence" which is often entirely unnecessary and wasteful for such uses. The Pharmacopœia is a thoroughly practical as well as scientific standard. The requirements in the Pharmacopœia are in almost every case especially suitable for medicinal purposes. U. S. P. chemicals frequently cost no more than technical bulk goods, the quality of which is unknown. On the whole, the pharmacopœial revision committee has laid down standards which are not expensive to comply with. Insist on chemicals labeled U. S. P., refuse goods labeled with such specifications as "pure," "purified," "white," "medicinal," "redistilled," etc., unless, of course, they are to be used for some purpose other than medicinal. In concluding his paper, Mr. Noyes called attention to specific cases of drugs and chemicals where it is exceptionally important that the U. S. P. grade be used for medicinal purposes.

In introducing the subject "Some Aromatic Chemicals," Dr. J. S. Brewer stated that he was anticipating the requirements of the retail drug trade by two or three years, but many of the substances which he desired to call attention to were already in demand on account of the high price of natural raw materials. The magnitude of the synthetic perfume industry was illustrated with photographs of several Swiss and German factories showing both exterior and interior views which afforded an excellent idea of the expensive apparatus necessary to produce this class of oils. From a very small beginning and the production of a comparatively few articles, the manufacture of aromatic perfume materials has reached enormous proportions and now forms a very important part of the chemical industries of the world. The speaker gave a practical demonstration of the similarity of odor between the synthetic and natural products, showing samples of oil of rose, true and synthetic, oil of neroli, true and artificial, and the two varieties of oil of jasmine. Commercial varieties of these artificial oils are mostly mixtures of certain chemicals, and percentage composition formulas were given which would enable one to prepare, at a very reasonable cost, all three of the oils mentioned. In connection with oil of rose, it was stated that not a drop of the true article was now being brought into the country, that the ultimate consumer could not afford to pay the price that would have to be charged for a pure article and that the purchaser simply wanted what he paid for. Samples of so-called oil of rose were shown which contained a large percentage of geraniol and phenyl-ethyl-alcohol and which would still congeal at a reduced temperature on account of reinforcement with a stearopten. It was clearly shown that by clever manipulation the specific gravity, rotation and other characteristics of oils could be so adjusted as to make many of them answer to most of the prescribed tests. The chemistry of the manufacture of synthetic violet oil or

Ionone was discussed at some length and illustrated with samples of both the alpha and beta varieties. By reason of the expiration of certain patents and on account of new processes coming into use, the price of this article is now within the reach of all and the writer recommended its use in perfuming the ordinary toilet creams and in the manufacture of perfumes, toilet waters and lotions, such as are frequently made in the drug store. The following basic aromatic chemicals were discussed and samples shown to demonstrate the character and perfume strength: Alcohol Cinnamylic, Anisic Aldehyde, Benzyl Benzoate, Benzyl Acetate, Geraniol, Citronnellol, Citral, Jacinthe, Iso-Eugenol, Phenyl-Ethyl-Alcohol and Methyl-Heptin-Carbonate.

EDWIN L. NEWCOMB, Secretary.

<>

CHICAGO BRANCH.

The March meeting of the Chicago Branch of the American Pharmaceutical Association was held on the evening of March 17th. An illustrated lecture on the "Production of Diphtheria Antitoxin" was delivered by Dr. H. M. Letton, of the Research Laboratory of Parke, Davis & Co. The meeting was well attended, about one hundred members and guests being present.

Dr. Letton displayed with the lantern fifty very fine views fully illustrating each important step in the process of preparing antitoxin. His lecture, remarkable for its clearness and interesting detail, was very favorably received.

The lecture was followed by a discussion which included not only diphtheria antitoxin but also the present therapeutic status of antitetanic serum, typhoid vaccine and other serum products.

The meeting adjourned with a hearty vote of thanks to Dr. Letton for his courtesy to the Branch.

F. N. GATHERCOAL, Secretary.

<>

PHILADELPHIA BRANCH.

At the March meeting of the Philadelphia Branch A. Ph. A. the following officers were elected, to serve during the ensuing year:

President, Prof. E. Fullerton Cook; First Vice-president, Samuel C. Henry; Second Vice-President, Prof. J. W. Sturmer; Secretary, Dr. R. P. Fischelis; Treasurer, Mr. M. M. Osborne.

Committee on Practical Pharmacy: Prof. Charles H. LaWall, Chairman; Mr. W. W. McNeary, Mr. A. Hunsberger.

Committee on Professional Relations: Mr. W. L. Cliffe, Chairman; Mr. F. M. Apple, Dr. F. E. Stewart.

Committee on Membership: Mr. A. J. Staudt, Chairman; Mr. William E. Lee, Mr. Quintus Hoch.

The report of the Treasurer indicated a comfortable balance on hand.

The scientific program of the evening consisted of a contribution by Mr. Franklin M. Apple, entitled: "Indispensable Insurance for Pharmacists." Mr. Apple's paper brought out an interesting and lengthy discussion participated in by Messrs. LaWall, Cliffe, Cook. Henry, Osterlund, Sturmer, and others.

AMBROSE HUNSBERGER, Secretary.

<>

PITTSBURGH BRANCH.

The meeting of the Pittsburgh Branch held Friday evening, March 13, was honored by the presence of Richard H. Lackey, of Philadelphia, president of the Pennsylvania Pharmaceutical Association, who was an interested participant in the proceedings.

President Lackey was given an opportunity to urge all those present who were not members of the state body to affiliate, especially would it be a fitting manner for the pharmacy students present to thus start their pharmaceutical career right by early identifying themselves with that useful, militant body of pharmacists.

The secretary suggested that the Branch invite Geo. B. Parker, Esq., whose handsome lantern slide exhibit and talk covering the wild flowers of Pennsylvania, was so entertaining a feature of our last meeting, to attend the 1914 meeting of the State Association and present his interesting and instructive entertainment for the benefit of those present from other sections of the state. A motion to that effect was made by Dr. J. A. Koch, and warmly supported by Dr. A. F. Judd, and the motion prevailed. The secretary was instructed to interview Mr. Parker and endeavor to have him accept the invitation.

Dr. Louis Saalbach in a review of the proposed changes with new standards and descriptions submitted by the Revision Committee of the U. S. Pharmacopœia, criticized the method suggested for testing the purity

and genuineness of salicylic acid, which, he claimed, is not a good method for distinguishing the natural product from the synthetic, and looks as though it will result in putting a premium upon adulteration. It will be a very easy matter to so prepare the synthetic product as to have it respond to the test proposed to determine the genuine article.

Dr. Blumenschein said: It looks very much now as though the output of natural salicylic acid, so labelled, is greater by far than the supply of oil wintergreen can possibly produce, so one can draw his own conclusions.

The status of bichloride of mercury in the face of the deluge of proposed legislation that it is being subjected to, was discussed, the subject being opened by B. E. Pritchard, who presented numerous editorial comments from various leading pharmaceutical journals bearing upon the absurdity of the prominence that is being given to that one particular toxic drug, both by the press and the legislative bodies of many states and the United States.

Mr. Lackey said: The enormous sale all over the country of bichloride tablets for the plainly understood purpose of preventing conception demands some effective legal method for its being stopped. Do we as reputable pharmacists want to put ourselves on record as willful purveyors of the article for that purpose? It is our plain duty to use every means in our power to make it as difficult as possible for the public to obtain these dangerous tablets.

Dr. Saalbach submitted a specimen of leaves of absorbent paper saturated with a solution of bichloride of mercury and so graded as to make it possible to readily prepare a solution of bichloride of a definite percentage, which can be used to replace the widely sold tablets, and thus by curtailing their sale make both criminal and accidental use of the tablet less prevalent. On motion the Branch put itself on record as favoring the universal use of the saturated paper leaf form and as opposed to the continued use of the dangerous tablet form of bichloride of mercury. Dr. Darbaker suggested, and the suggestion was on motion adopted, that the sheriff and coroner be notified of the adoption of the resolution adopted.

Dr. Saalbach submitted a specimen prescription for the purpose of indicating how extremely careless some physicians are concerning the dangerous character of bichloride, as follows:

℞ Hydrag. chlor. corros. one drachm.
Sodii chlor. one ounce.
Div into 12 powders. Sig—Use as directed.

Dr. Koch said, it was for the purpose of trying to reach some wise method to recommend in the securing of proper legislation that will not be too far reaching in character to restrict the distribution of bichloride tablets that had impelled the selection of the subject for discussion before the Branch.

The secretary called attention to the Act passed by the last session of the Pennsylvania legislature, hurriedly drafted and rushed through both houses in five days, that Governor Tener, at his request, had refused to sign, because it was so drastic in its provisions that it would have legislated the drug itself clear off the map, which would be a senseless thing to do.

The Pharmacist and the Law

ABSTRACT OF JUDICIAL DECISIONS.

SELLING WRONG MATERIAL—CONTRIBUTORY NEGLIGENCE. A dairyman sued a druggist for negligently delivering to the plaintiff five pounds of common salt in lieu of five pounds of Epsom salt, as ordered, which, as alleged, proximately caused the death of the plaintiff's cow to which he administered a dose of it—two pounds, as the evidence showed. The defendant pleaded contributory negligence. On appeal from a verdict and judgment for the plaintiff, it was held that whether or not the defendant was guilty of error or negligence in supplying the plaintiff with an article radically different in fact from the article ordered, and whether or not that negligence, if found, proximately produced the untimely demise of the plaintiff's cow, were disputed questions of fact to be determined by the jury. But that the plaintiff was himself guilty of the grossest negligence, which was immediately productive of the animal's death, was a clear conclusion of law from which there was no escape.

There is no confusing similarity in the appearance of common salt and Epsom salt.

Both are household articles in common use, and more or less familiar to all men of ordinary intelligence and experience. Moreover, the plaintiff was a dairyman of long experience, and quite familiar with the use of both articles in the course of his business. He was skilled in the art of bovine healing by a practice of 30 years upon his own animals, and he habitually administered to them Epsom salt for the relief of those digestive disorders to which they were frequently subject. He saw and intimately handled this salt, which was not labeled Epsom salt, and which was in a bag showing on its face that it came from the defendant's "seed and dairy" store, a separate and distinct branch of its business, from which the plaintiff customarily bought his butter salt for use in his dairy. It was not at all like Epsom salt, and on his cross-examination, the plaintiff demonstrated his ability to readily distinguish it from that article.

"The ordinary conduct of rational beings," said the court, "must be governed by common prudence and common sense, and he who fails in this to his own hurt cannot justly charge the ills that follow to the antecedent and remote fault of another, albeit such remote fault supplies the condition without which the injury would not have occurred. The result here complained of was plainly due to the inexcusable carelessness and folly of plaintiff, and to allow him to recover damages from defendant under the circumstances shown would certainly insult the common sense of mankind. The verdict of the jury was contrary to the law and the evidence, and should have been set aside by the trial court on the motion of defendant."

It was also held that the instance of a man who "swallowed a pound of salt in a pint of ale, and died in a few hours, with all the symptoms of irritant poison," read from a medical book, was fundamentally illegal and inadmissible as evidence in the case.—*Gorman-Gamin Drug Co. v. Watkins, Alabama Supreme Court,* 64 *So.* 350.

INTOXICATING LIQUORS—WRONGFUL SALE BY DRUGGISTS—SPECIAL PENALTY. On an agreed statement of facts in proceedings against a druggist for selling liquor without a West Virginia State license as a druggist, it was admitted that the accused had not a state license for the sale of intoxicating liquors; that he sold a person a pint of whiskey; that he was then a licensed druggist, and that the purchaser of the whiskey had no prescription of a physician therefor. The accused maintained that he could not be prosecuted as an ordinary seller of intoxicating liquors without a state license, but only as a druggist, as to whom a lighter penalty is prescribed.

A druggist, said the court, is merely an excepted person under the general law prohibiting sales of intoxicating liquors without a state license. When he does not sell intoxicating liquors in the only way that the exception in his favor permits him to sell them, he is a violator of the general terms of the West Virginia statute which says that no one without a state license shall sell them. When in making a sale a druggist does not comply with the restrictions of the exceptions in his favor, he is simply one selling without a state license. By the exception he may sell alcohol for mechanical or scientific purposes, or alcohol, spirituous liquors, wine, porter, ale, beer, and other intoxicating drinks for medicinal purposes on the prescription of a reputable physician. But if he sells any of them otherwise, unless he had a state license therefor, he brings himself within the general terms of the statute which prescribes that no person without a state license shall sell them. He may then be indicted and proceeded against just as other persons selling without a state license. But the West Virginia Legislature has prescribed a lesser penalty for an unlawful sale of intoxicating liquors by a druggist than for such a sale by an ordinary seller. Code 1906, ch. 32, secs. 3 and 5. Formerly it was not so, but the reverse. State v. Cox, 23 W. Va. 797. Therefore, if the evidence establishes that the accused at the time of the sale was a druggist and unlawfully sold as such, only the lesser penalty imposed for such special offense can be inflicted.—*State v. Wills, West Virginia Supreme Court of Appeals,* 80 *S. E.* 783.

SUB-STATION ACCOUNTS. Marcus Sachs and his son, Simon Sachs, became partners in the drug business. This continued for a number of years when, it appeared, Simon Sachs sold the partnership and formed a corporation, doing the same business as had been done by the partnership. During the partnership Simon Sachs was appointed a deputy clerk for the sale of postal money orders, with a branch station in the firm's drug store. Each day he deposited the moneys re-

ceived from the sale of postal money orders in a bank. The checking account with the bank was in the firm name, but the deposits were made with two deposit slips, one showing the receipts from the sale of postal money orders, and the other the total amount of deposits of the drug store business and of sales of postal money orders. The account was kept by the bank in this manner, the deposits of postal order receipts being kept in a separate account under the heading "Station Receipts." Each day Simon Sachs made a report of the sales of money orders to the postmaster, and attached thereto a check to the postmaster's order on the bank for the money deposited as "Station Receipts" for the period covered by the report.

Marcus Sachs filed a bill alleging misapplication of the partnership funds by Simon Sachs, and obtained the appointment of a receiver of the corporation, who took possession of the funds deposited in the bank about April 12, 1911. Subsequently the postmaster filed a petition, setting forth, among other things, that Sachs made his daily report for April 10, 1911, showing sales of money orders to the extent of $678.84, and delivered a check payable to the postmaster for that sum, dated April 11, and a daily report for April 11 showing sales to the amount of $300.24, and a check for that sum dated April 12; and that, on presentation of these checks to the bank, payment was refused. He prayed for an order that the money represented by the checks be paid. Simon Sachs also presented a petition to the same effect.

At the hearing of the case it appeared that the receiver had taken possession of $494.04 of the money on deposit in the bank. As stated by a witness, the bank had apparently peremptorily taken five or six hundred dollars of the balance of the deposit to apply on some note. The receiver was ordered to pay over to the postmaster the money turned over to him by the bank. There was no mingling of the money deposited from the sale of money orders and from the drug business. The bank kept the former in a separate account, designated as "Station Receipts." The bank's account was, in substance and essence, with the postmaster, and the adoption of a convenient method of checking it out under the firm name did not change the substance of the transaction.—*Sachs v. Sachs,* 181 *Ill. App.,* 296.

IMPLIED WARRANTY OF MANUFACTURE. A manufacturer is liable only to his immediate vendee for breach of an implied warranty as to the merchandise manufactured by him, as his liability depends upon privity of contract; but exceptions exist where injury is caused by something noxious or dangerous, or where the manufacturer practices fraud or deceit, or is negligent with respect to the sale or construction of a thing not immediately dangerous. "Within one of the exceptions is to be found the reason for holding the manufacturer of patent or proprietary medicines to answer at the suit of the ultimate consumer. Direct actions are allowed in such cases because the manufacture of medicine is generally shrouded in mystery, and sometimes, if not generally, they contain poisons which may produce injurious results. They are prepared by the manufacturer for sale and distribution to the general public, and one purchasing them has a right to rely upon the implied obligation of the manufacturer that he will not put in ingredients which if taken in prescribed doses will bring harmful results. Reference may be had to the following cases which sustain, and in which many other cases are cited which sustain, this exception: Thomas v. Winchester, 6 N. Y., 397, 57 Am. Dec. 455; Blood Balm Co. v. Cooper, 83 Ga. 457, 10 S. E. 118; Welser v. Holzman, 33 Wash. 87, 73 Pac. 797, 99 Am. St. Rep. 932."

Another exception, it is now said—the doctrine is comparatively recent—is referable to the modern method of preparing food for use by the consumer, and more general and ever increasing use of prepared food products. A manufacturer of food products under modern conditions, it is held, impliedly warrants his goods when dispensed in original packages, and such warranty is available to all who may be damaged by their use in the legitimate channels of trade, including those who purchase them for resale, as well as the ultimate consumers. The violation of the pure food law by a manufacturer of foods products is evidence of negligence in the preparation and sale of such food, and it is available in a suit by a middleman, as well as by a consumer.—*Mazetti v. Armour & Co., Washington Supreme Court,* 135 *Pac.,* 633.

SALE OF OLEOMARGARINE—SELLING OR GIVING AWAY COLORING MATTER. An inspector of the Agricultural Department purchased from a retail grocer in New York State a

one-pound print of oleomagarine, with which he was given a capsule of coloring matter, conceded to be a harmless vegetable compound. In an appeal from a conviction of a violation of the New York Agricultural Law, the sole question was the validity of Section 41 of the statute, providing that "no person selling any oleaginous substance not made from pure milk or cream of the same as a substitute for butter, shall sell, give away, or deliver any coloring matter" is valid. It was held by the Court of Appeals that the provision was a constitutional and valid enactment within the police power of the State. —*State v. Von Kainpen* (*decided March* 3, 1914).

Obituaries and Memorials

Persons having information of the death of members of the A. Ph. A. are requested to send the same promptly to J. W. England, 415 N. 33d St., Philadelphia, Pa. Information as to the age, activities in pharmacy, family, etc., of the deceased should be as complete as possible. When convenient a cabinet photograph should accompany data.

<>

JAMES G. STEELE.

James Gordon Steele, pioneer of California and leader in pharmacy on the Pacific Coast, died at his home in San Francisco on Monday, February 2, 1914, at the age of 76 years and 38 days. His end was peaceful and wholly unexpected. On the morning of the second of February Mr. Steele arose cheerful and happy as usual. The day being beautiful, he took a long walk, returning refreshed, even expressing a desire to go for another stroll, but acting on the suggestion of his wife, he took a book on music, sat down in a chair, and when Mrs. Steele entered the room a few minutes later she found him dead, head slightly inclined, book still in his hands. Remarkably enough, Mr. Steele wrote his autobiography two weeks before his death, a portion of which is used in the preparation of this sketch.

Mr. Steele was born in Boston, Mass., December 25, 1838. He completed the studies of the grammar schools, and two years of high school. He came to California at the age of 15 and entered the employ of George C. Shreve and later that of his uncle, Wm. W. Keith. He proved a trustworthy helper and Mr. Keith placed him in charge of one of his drug stores. He studied chemistry under Dr. Raymond, who had taught chemistry in the Cincinnati College of Pharmacy, and botany under Dr. Kellogg, the well-known curator and librarian of the California Academy of Sciences.

Mr. Steele was largely instrumental in organizing the California Pharmaceutical Socity in the year 1868. In 1878 he gave up the retail drug business and devoted himself to supplying the Eastern and European market with California crude drugs, but in 1880 he again opened a retail store largely devoted to prescription work. In 1895 he was made city chemist of San Francisco, which position he held for two years. He became a member of the American Pharmaceutical Association in 1859, in which organization he was always active and contributed several papers to the proceedings, one on "Grindelia robusta" and one on the "Drug Market of San Francisco," which also contained a list of California medicinal plants; another paper was on "The Pines of California."

Mr. Steele was also an active member in the newly organized California Pharmaceutical Association, attending its meetings and contributing several pages of historical interest. A very full history of the California College of Pharmacy was completed shortly before his death. When the old California Pharmaceutical Society decided to establish a college of pharmacy in 1874, Mr. Steele, with W. T. Wenzell, W. M. Searby, J. W. Forbes, John Calvert, Mr. Simpson and Mr. Mayhew, were appointed a committee with power to incorporate such a college, becoming the first trustees of the California College of Pharmacy.

Mr. Steele was a most enthusiastic botanist, devoting much time to the study of the flora of California. In 1876 he sent 50 different species of California medicinal plants to the Philadelphia College of Pharmacy, at which time his intimate friend, Prof. Maisch, was instructor in materia medica in said college. Mr. Steele was essentially a student of books, of nature, of people. He was possessed of a most genial nature and a kindly disposition. He made many warm friends. His favorite author was Shakespeare, from whom he quoted freely. His favorite recreation was music, being a performer and composer of

considerable ability. It was this fondness of music which brought him in touch with the late Winchell Forbes.

The following intimate friends of Mr. Steele have preceded him by a few years or less: W. M. Searby, John Calvert, J. McDonnell, W. T. Wenzell and H. H. Behr, all from San Francisco. Each one of the men named represents a distinct landmark in the progress of pharmacy on the Pacific Coast.—*The Pacific Pharmacist.*

Council Business

COUNCIL LETTER No. 13.

Philadelphia, Pa., March 6, 1914.

To the Members of the Council:

The following communication has been received from Hugh Craig:

"I have perused with a great deal of interest Council Letter No. 12, dated February 19. The matter with which it has to do is one to which I have given a great deal of attention during the past four or five months, and the result of my consideration of the subject is not such that leads me to agree with President Beringer that a specific shape for tablets of corrosive mercuric chloride will afford the desired relief. Investigation carefully conducted by the New York Board of Health shows that out of all the deaths from this poison reported during the period of ten months in that city all but about 5 percent or 6 percent were suicidal. It is folly to expect an intelligent person to believe the reports of accidental poisoning with this substance as they appear in the daily papers. Who, for instance, ever heard of any one taking *four headache wafers dissolved in water?* Yet we are told by the press that four 'bichloride' tablets were dissolved in a glass of water by a woman and taken in mistake for headache wafers! These misguided folk who wish to rid themselves of the troubles of existence and the world of their troubled existence will adapt a coffin-shaped tablet just as readily as they will a round one. The shape of the tablet has nothing to do with the desired effect.

"As far as children are concerned, they cannot tell the word 'poison' on the tablet from the motto on the popular candy wafers so dear to the childish heart. Neither can they tell whether a coffin-shaped object is poisonous or is merely a round wafer with some of the edges broken off.

"In my opinion it is a waste of time and energy to attempt to regulate the misuse of mercuric chloride by endeavoring to formulate a restriction as to the shape of the tablet into which this substance is compressed. *The real means of reaching the crux of the situation is the restriction of the sale of this substance to physicians' prescriptions.* Despite the wide popular demand for the handy tablet, which can be purchased in any department store, there will be no injury to anybody if all are required to get this drug through real restrictive channels. Restrictions should also apply to physicians who are very likely to leave three or four of these poisonous tablets wrapped up in a prescription blank on the table in a sick room and also to veterinary surgeons who dip them out by the handful and leave them with oral directions for their use with an ignorant stableman—yet these stablemen being of a little sensitive nature and more stolidly constituted, seldom eat these tablets in mistake for an after-drink breath perfume or a chew of tobacco!

"There is another side to the question contained in Letter No. 12 and that is, of the advisability of the Association's taking over any such proposition. While it might be possibly easier to over-estimate the influence such an action would have upon the consideration given to the Association by those who are at present engaged in the manufacture of these tablets in various shapes, this phase should not be lost sight of. This matter, I believe, can be dealt with, very satisfactorily by some of those who have a longer acquaintance with the Association and its purposes. To me it appears rather a departure for the Association to engage in the manufacture of or the supervision of the manufacture of any article of commerce—I have not, in making this statement, lost sight of the fact that the Association publishes the National Formulary.

"There was not enclosed with the letter any voting card, and there was nothing about the letter which leads me to believe that a vote is to be taken at this time, but rather the matter is simply up for discussion. However, if a vote is expected, I should like to have mine recorded in opposition to the proposition."

President G. M. Beringer replies to Mr. Craig's comments, as follows:

"I have read with great interest the comments of Mr. Hugh Craig on Council Letter No. 12. I fear that Mr. Craig fails to grasp the real situation presented in that Council Letter. I agree with him fully as to the necessity of educating the public to the importance of exercising *the proper care in the handling of all poisons.*

"The question of an official shape for tablets of mercuric chloride is only *one* of the means of safeguarding the careful handling of these tablets, and it was not presented as the *sole* means that should be adopted. Through the clamor of the public press, the legislators of the country are very likely to enact in the various States and Congress, some form of legislation that shall define a shape for bichloride tablets and the proper precautions regarding labeling and selling of

these. This is evidenced by the bills that are now pending in Congress and in several of the state legislatures. Of all the shapes that have so far been proposed, there is none for originality and distinctness of character that is at all comparable with the proposition of a coffin shape tablet. As the latter form has never been used for foods, confections or harmless medicines, it has that distinct advantage of novelty and individuality, and its use could very readily be restricted solely to toxic tablets for external application without proving detrimental to manufacturers of other products.

"The desirability of this shape for bichloride tablets appealed to Vice-President Apple and President-elect Mayo as well as to myself. It is apparent, however, that if this shape is to be monopolized by a patent controlled by any one manufacturer, no matter what benefit might accrue to the public from this safeguard, it could not be endorsed by either the Association or the U. S. Pharmacopœia. The proposition presented in Council Letter No. 12 by which monopoly could be prevented and every honorable manufacturer be given the privilege of making such a standard tablet, was the only plan that appeared to be feasible to assure the public of the greatest amount of benefit and safety.

"In presenting this plan to the Association, we were quite aware that this was a departure from the usual line of activity of the American Pharmaceutical Association, but I conceived that it is well within the scope of usefulness of the Association to thus exert its influence for the benefit of the public. If the American Pharmaceutical Association will not accept this unusual opportunity, then, no doubt, the Norwich Pharmacal Co. will prosecute their patent to completion and monopolize the manufacture of such tablets in the United States.

"Mr. Craig is certainly in error in stating that "after a careful consideration of the question from every possible view point, the Association is opposed to any provisions of the U. S. Pharmacopœia or National Formulary prescribing the shape, size or color of mercury bichloride or other poisonous tablets, or shape, size or color of the package in which they shall be furnished." The Committee of Revision of the U. S. Pharmacopœia have already, by vote, decided to introduce a bichloride of mercury tablet, and as many of the members of that Committee of Revision are likewise members of the American Pharmaceutical Association, such a statement coming officially from the Association would be inconsistent. Some of the foreign pharmacopœias and formularies have fixed standards of bichloride of mercury tablets, and the U. S. Pharmacopœia in fixing a standard for bichloride tablets will simply follow precedents already set in other pharmacopœias. We need not necessarily adopt standards and shapes that were adopted in other countries, but well may follow the most advanced American thought for an American standard.

"I hope that Mr. Craig will modify his resolutions so as to make them entirely consistent with the real view of the Association. May I likewise point out the inconsistency of his objection to a uniform shape for poison tablets and then to propose a special receptacle as a container for all poisons."

Secretary J. H. Beal writes that he is heartily in favor of taking over the assignment of the patent which it is hoped will be obtained by the Norwich Pharmacal Company; also, that the patent should be accepted by the Association as a trust, and its free use to the medical and pharmaceutical professions permitted without charge and without restrictions, further than necessary to prevent the use of the design for confections and harmless medicaments. He offers the following resolutions, which are seconded by G. M. Beringer:

"(1) *Resolved*, That the American Pharmaceutical Association accept the complete assignment of the patent-rights of the Norwich Pharmacal Company in and to a design patent for a poison tablet, serial number 801,748, as tendered by the said Norwich Pharmacal Company in their communication to the President of the Association, dated February 16, 1914, and presented in Council Letter No. 12.

"(2) *Resolved*, That the American Pharmaceutical Association hold such design patent exclusively for the free use of the medical and pharmaceutical professions of the United States, without restrictions except such as may be necessary to prevent possible abuse through use of the design for confectionery or other non-poisonous substances.

"(3) *Resolved*, That the American Pharmaceutical Association hereby tenders to the Norwich Pharmacal Company a vote of thanks for their generous and public spirited proposition."

The above will be regarded as *Motion No. 25* (*Assignment of Patent-Rights for Poison Tablet.*)

The following communication has been received from F. W. Nitardy:

"In his address at Nashville, President Day recommended that a portion of the annual dues from members of local branches be remitted to the branch treasurer. The committee on the President's address referred the matter to the Council for action.

"I believe President Day's recommendation is a valuable one, one that will work to the benefit of both the national body and the branches, and one on which early action by the Council would be advisable.

I shall appreciate it if you will submit the subject to the Council for discussion or vote together with my argument based on the experience of the Denver Branch.

"Our branch is very active. It has gained some seventy-five new members for the A. Ph. A., holds regular and well attended meetings, which in turn are responsible for quite a number of members retaining their interest in the A. Ph. A. In order to maintain such a branch more or less money is needed. It may be raised by assessing each member several dollars yearly in local dues, but this frequently acts as a stumbling block in gaining and holding members. We have contented ourselves with yearly local dues of $1 with a result that a deficit occasionally exists in our treasury. This has from time to time been quietly wiped out by some of our more prosperous and generous members. Our greatest handicap has always been lack of money. The local branch carries all of the burden, while the benefits of its existence are without question shared by the national body. Every city in the U. S. with a population of 100,000 or over could support a good local branch and do it better if it could obtain a little financial help from the national body. If branches would be established in all communities as large as Denver or larger, the membership of the A. Ph. A. would increase very materially, and what is more, we would have something substantial to help hold the interest of new members, especially such as cannot attend the annual conventions, of which there are many.

"If the national treasurer could remit $1 yearly of the dues of any branch member paying not less than $1 yearly local dues, on request, to the local branch treasurer at the end of the fiscal year, providing such request is accompanied by a list of dues-paid branch members and a copy of the treasurer's report covering the year in question, a substantial aid would be rendered, at the same time protecting the national body against paying out any money for which it could see no returns.

"In case a scheme like that outlined above meets the approval of the Council, I should like to move its adoption.

"Now, in regard to Council Letter No. 12. I have read very carefully the letter, also the bulletin on "The Sale of Bichloride Tablets" by Martin I. Wilbert (Reprint 151—Public Health Reports) and believe President Beringer's recommendation is a step in the right direction towards solving the bichloride problem and heading off unwise legislation in the matter.

"If it has not already been done, I move the acceptance of the very generous offer of the Norwich Pharmacal Co., also, that we tender them a vote of thanks and that notice of this action be sent to the pharmaceutical press."

The following communication has been received:

Nashville, Tenn., Feb. 25, 1914.

Why the A. Ph. A. Home Should Locate in Nashville, Tenn.

WHEREAS, At the last annual meeting of the A. Ph. A. held in this city the proposition to provide a permanent home for the Association was referred to the Council for future consideration; and

WHEREAS, Efforts are now being made by other cities to secure the location of this permanent home.

Therefore, We, the members of the Nashville Branch, respectfully submit for the consideration of the Council, the following reasons why the home should be located in Nashville, Tenn.:

(1) Because Nashville offers a free site for the home.

(2) It is about the center of population of the U. S. and within 24 hours' travel for the great majority of the pharmacists of the United States.

(3) The climate is unexcelled for the proposed botanical gardens.

(4) Has the second largest facilities in the U. S. for printing.

(5) Is the greatest educational center in the Central-Southern States and one of the greatest in the entire United States.

(6) Has progressive pharmaceutical schools for both races.

(7) Has a live growing A. Ph. A. Branch.

(8) Affords ample hotel facilities for future A. Ph. A. conventions.

(9) Has low freight rates, proximity to needed supplies considered.

(10) Incorporated bodies for educational purposes on a non-profit basis are not liable for taxation.

(11) Has been proven to have the cheapest cost of living of any city in the U. S.

Respectfully submitted,
W. R. White,
S. C. Davis,
Ira B. Clark,
Committee.

The above resolutions were adopted at the last meeting of the Nashville Branch of the Association.

Nashville Branch, A. Ph. A.,
J. O. Burge, Ph. G., President.
Williams R. White, Secretary.

We, the undersigned commercial organizations representing the entire business interests of Nashville, Tenn., do hereby heartily endorse the above resolutions and invite the American Pharmaceutical Association to locate its home in our city.

The Nashville Industrial Bureau,
J. M. Gray, Jr., President.
A. P. Foster, Secretary.

The Nashville Business Men's Association,
M. S. Ross, President.
J. R. Beesley, Secretary.

J. W. ENGLAND,
Secretary of the Council.

415 W. 33rd St.

UNITED STATES PUBLIC HEALTH SERVICE.

List of changes of stations and duties of commissioned and other officers of the United State Public Health Service for the period ending March 17, 1914:

Rucker, W. C., Assistant Surgeon General. Directed to proceed to Chicago, Ill., for the purpose of atending the annual mid-winter conference of the American Medical Association on Public Health, Legislation and Medical Education, February 23-24, 1914. Also designated as the Service representative on the National Legislative Committee of the American Medical Association. Also directed to deliver an address on "Public Health Legislation" before the Federation of State Medical Boards of the United States, February 25, 1914, and on "Common Sense in Public Health Administration" before the Chicago Medical Association, February 25, 1914. February 19, 1914 .

White, J. H., Surgeon. Granted 1 month and 7 days' leave of absence from March 11, 1914. Granted 10 months and 23 days' leave of absence, without pay, from April 18, 1914. February 24, 1914.

Cobb, J. O., Surgeon. Granted 1 day's leave of absence, February 15, 1914, under paragraph 193, Service Regulations. February 14, 1914.

Cumming, H. S., Surgeon. Detailed, at the request of the President of the Maryland Conservation Association, to deliver an address on "The bearing which the pollution of tidal waters has on health," at Johns Hopkins University, February 25, 1914. February 19, 1914.

Lavinder, C. H., Surgeon. Detailed, at the request of the State Commissioner of Health of Virginia, to deliver a lecture on pellagra, at the Medical College of Virginia at Richmond, February 24, 1914. February 19, 1914.

Lumsden, L. L., Surgeon. Detailed, at the request of the President of the Maryland Conservation Association, to deliver an address on "The value to Maryland of controlling waterborne diseases," at Johns Hopkins University, February 25, 1914. February 19, 1914.

Sweet, E. A., Passed Assistant Surgeon. Detailed to make as complete studies as practicable of the migration of tuberculous persons in New Mexico in interstate traffic. February 20, 1914.

Krulish, F., Passed Assistant Surgeon. Relieved from duty at the San Francisco quarantine station and directed to report to Surgeon Woodward for duty at the Exposition Hospital. February 24, 1914.

Ruoff, J. S., Assistant Surgeon. Relieved from duty at Ellis Island, N. Y., and directed to report to the medical officer in charge of the Marine Hospital, Stapleton, N. Y., for duty and assignment to quarters. February 18, 1914.

Phelps, E. B., Professor of Chemistry. Directed to proceed to Chicago, Ill., for the purpose of making necessary preliminary surveys in connection with investigations of the pollution of navigable waters. Also to proceed to Cincinnati, Ohio, for conference with officer in charge of Service investigations, stopping enroute at Indianapolis, Ind., for conference with the Secretary of the House Board of Health, relative to pollution of the Ohio river and its tributaries by industrial wastes. February 20, 1914.

Hammon, Harry B., Sanitary Chemist. Directed to proceed to Washington, D. C., for instructions in connection with sanitary disposal of industrial wastes. February 10, 1914.

BOARD CONVENED.

Board of medical officers established at San Francisco, Cal., for the re-examining of detained aliens. Detail for the board: Surgeon W. C. Billings, chairman; Surgeon M. W. Clover, member; Assistant Surgeon L. W. Jenkins, recorder. February 19, 1914.

Banks, C. E., Senior Surgeon. Leave of absence for 4 days from February 20, 1914, amended to read "7 days' leave of absence from February 20, 1914." February 19, 1914.

von Ezdorf, R. H., Surgeon. Directed to report at the Bureau, Washington, D. C., March 4, 1914, for conference relative to malaria investigations. March 2, 1914.

Lumsden, L. L., Surgeon. Detailed, at the request of the Maryland Medical and Chirurgical Faculty, to deliver an address before that society, at Baltimore, Md., March 9, 1914, on "Public Health Education." March 2, 1914.

Robinson, D. E., Surgeon. Relieved from temporary duty in the Hygienic Laboratory and directed to proceed, via New York, N. Y., to Cincinnati, Ohio, for investigations of tu-

berculosis in relation to occupation and environment. February 25, 1914.

Corput, C. M., Surgeon. Granted 4 days' leave of absence from February 23, 1914, under paragraph 193, Service Regulations. February 22, 1914.

Thometz, H. M., Assistant Surgeon. Relieved from duty at the Marine Hospital, San Francisco, Cal., and directed to proceed to the San Francisco quarantine station, Angel Island, Cal., and report to the medical officer in charge for duty and assignment to quarters. February 28, 1914.

Ruoff, J. S., Assistant Surgeon. Granted 30 days' leave of absence from January 24, 1914, on account of sickness. March 3, 1914.

Wayson, Newton E., Assistant Surgeon. Directed to proceed to San Francisco, Cal., and report to Surgeon John D. Long for duty in plague suppressive measures. February 28, 1914.

Galloway, Thomas C., Jr., Assistant Surgeon. Directed to proceed to San Francisco, Cal., and report to the medical officer in charge of the Marine Hospital, for duty and assignment to quarters. February 28, 1914.

Waller, Clifford E., Assistant Surgeon. Directed to proceed to Baltimore, Md., and report to the medical officer in charge of the Marine Hospital for duty and assignment to quarters. February 28, 1914.

Sutton, Don C., Assistant Surgeon. Directed to proceed to Chicago, Ill., and report to the medical officer in charge of the Marine Hospital for duty and assignment to quarters. February 28, 1914.

Faget, Frank M., Assistant Surgeon. Directed to report to the medical officer in charge of the New Orleans quarantine station for duty and assignment to quarters. February 28, 1914.

Lison, John H., Assistant Surgeon. Directed to proceed to Detroit, Mich., and report to the medical officer in charge of the Marine Hospital for duty. February 28, 1914.

Akin, Charles V., Assistant Surgeon. Directed to proceed to New Orleans, La., and report to the medical officer in charge of the Marine Hospital for duty and assignment to quarters. February 28, 1914.

Miller, Knox E., Assistant Surgeon. Directed to proceed to Stapleton, N. Y., and report to the medical officer in charge of the Marine Hospital for duty and assignment to quarters. February 28, 1914.

Wilson, Joseph C., Assistant Surgeon. Directed to report to the Chief Medical Officer, Immigration Station, Ellis Island, N. Y., for duty. February 28, 1914.

Staton, L. W., Acting Assistant Surgeon. Directed to proceed to West Point, Va., for investigation of case of smallpox on schooner "Lizzie Hall." February 27, 1914.

APPOINTMENTS.

Doctors Newton E. Wayson, Thomas C. Galloway, Jr., Clifford E. Waller, Don C. Sutton, Frank M. Faget, John H. Linson, Charles V. Akin, Knox E. Miller and Joseph G. Wilson commissioned Assistant Surgeons in the United States Public Health Service. February 24, 1914.

BOARD CONVENED.

Board of medical officers convened to meet at the Marine Hospital, Mobile, Ala., for the physical examination of First Lieutenant of Engineers C. S. Root, U. S. R. C. S. Detail for the board: Surgeon R. H. von Ezdorf, chairman; Assistant Surgeon R. C. Derivaux, recorder.

Mathewson, H. S., Surgeon. Directed to proceed to Ellis Island, N. Y., to study methods there used in the examination of aliens suspected of mental defects. March 7, 1914.

Spratt, R. D., Passed Assistant Surgeon. Relieved from duty at Ellis Island, N. Y., and directed to proceed to Gloucester City, N. J., reporting to Surgeon Fairfax Irwin for duty in the examination of arriving aliens. March 7, 1914.

Frost, W. H., Passed Assistant Surgeon. Detailed, at the request of the Director of the Illinois Water Supply Association, to attend a meeting of that Association, to be held at Urbana, Ill., March 9-11, 1914. March 3, 1914.

de Valin, Hugh, Passed Assistant Surgeon. Upon completion of duties as Recorder of Board of Examiners, directed to make a study of the question of the pollution of railway tracks between Washington, D. C., and Baltimore, Md., March 3, 1914.

Guthrie, M. C., Passed Assistant Surgeon. Relieved from duty in the examination of arriving aliens at Gloucester City, N. J., and directed to proceed to the Canal Zone and report to the Governor of the Panama Canal, relieving Surgeon J. C. Perry, for duty in connection with the maritime quarantine of the Canal. March 7,1914.

Herring, R. A., Passed Assistant Surgeon.

Relieved from duty at Ellis Island, N. Y., and directed to proceed, by way of Washington, D. C., to Spartanburg, S. C., for duty, under Surgeon Joseph Goldberger, in connection with pellagra investigations. March 3, 1914.

Ridlon, J. R., Passed Assistant Surgeon. Relieved from duty at Philadelphia, Pa., and directed to proceed, by way of Washington, D. C., to Spartanburg, S. C., for duty, under Surgeon Joseph Goldberger, in connection with pellagra investigations. March 3, 1914.

Gillespie, J. M., Assistant Surgeon. Relieved from duty at the Hygienic Laboratory, and directed to proceed to Ellis Island, N. Y., and report to the Chief Medical Officer for duty. March 7, 1914.

Thometz, H. M., Assistant Surgeon. Granted 6 days' leave of absence from January 26-31, 1914, on account of sickness. March 10, 1914.

Townsend, J. G., Assistant Surgeon. Relieved from duty at the Marine Hospital, Baltimore, Md., and directed to proceed to Ellis Island, N. Y., and report to the Chief Medical Officer for duty. March 3, 1914.

Hoskins, John X., Sanitary Engineer. Directed to proceed, as instructed by the officer in charge of the Ohio River investigations, to various points for laboratory studies and sanitary surveys of the Ohio River watershed. March 5, 1914.

Lowe, Dan., Epidemiologist. Directed to proceed to Washington, D. C., for conference and instructions, and thence to such places as directed by the medical officer in charge of the work, for duty in connection with the epidemiological survey of typhoid fever. March 7, 1914.

BOARD CONVENED.

Board of commissioned medical officers convened to meet at the Bureau, Monday, March 9, 1914, for the examination of candidates to determine their fitness for appointment as Assistant Surgeons in this Service. Detail for the board: Assistant Surgeon General W. G. Stimpson, chairman; Surgeon C. H. Lavinder, member; Passed Assistant Surgeon Hugh de Valin, recorder. March 3, 1914.

Banks, C. E., Senior Surgeon. Granted 7 days' leave of absence from March 6, 1914. March 5, 1914.

Guiteras, G. M., Surgeon. Leave of absence for 1 month amended to read "4 days' leave of absence from February 21, 1914." March 14, 1914.

Wertenbaker, C. P., Surgeon. Granted 10 days' leave of absence from March 10, 1914. March 13, 1914.

Brown, B. W., Surgeon. Relieved from duty at Yokohama, Japan, and directed to proceed to San Francisco, Cal., and report arrival to the Bureau and there await orders. March 11, 1914.

Lavinder, C. H., Surgeon. Relieved from temporary duty at the Hygienic Laboratory and directed to rejoin station at the Marine Hospital, Savannah, Ga. March 11, 1914.

Lumsden, L. L., Surgeon. Directed, at the request of the Health Department of Cumberland, Md., to proceed to that city for the purpose of addressing a public meeting on March 13, 1914, on the subject of means necessary to prevent typhoid fever. March 13, 1914. Granted 2 days' leave of absence, on account of sickness, from March 2, 1914. March 11, 1914.

White, M. J., Surgeon. On request of the Industrial Commission of Indiana, directed to proceed to Indianapolis and other points within that State, to co-operate with said Commission and representatives of the Federal Bureau of Labor Statistics on investigations of sanitary conditions of factories and workshops and studies of physical status of workers. March 10, 1914.

Fricks, L. D., Surgeon. Directed to proceed to Victor, Mont., for the purpose of carrying on operations for the prevention of the interstate spread of Rocky Mountain spotted fever. March 17, 1914.

Moore, Dunlop, Surgeon. Granted 1 day's leave of absence, March 2, 1914, on account of sickness. March 10, 1914.

Gwynn, M. K., Surgeon. Granted 2 days' leave of absence, March 2-3, 1914, on account of sickness. March 11, 1914.

Schereschewsky, J. W., Surgeon. Directed to proceed to New York, N. Y., for the purpose of attending the postponed meeting of the Hygiene Committee of the National Council for Industrial Safety, March 12, 1914. March 10, 1914.

Boggess, J. S., Surgeon. Relieved from duty at the Mobile quarantine station and directed to proceed to Yokohama, Japan, for duty in the office of the American Consul-General. March 11, 1914.

Wilson, R. L., Surgeon. Granted 7 days'

additional leave from March 24, 1914. March 14, 1914.

Parker, H. B., Passed Assistant Surgeon. Relieved from duty at Ellis Island, N. Y., and directed to proceed to Guayaquil, Ecuador, for duty in the office of the American Consul-General. March 11, 1914. Granted 1 month's leave of absence from March 10, 1914. March 11, 1914.

Collins, G. L., Passed Assistant Surgeon. Relieved from duty in connection with the trachoma clinic at Hindman, Ky., and directed to proceed to Boston, Mass., and report to the medical officer in charge of the Marine Hospital for duty and assignment to quarters. March 14, 1914.

Turnipseed, D. C., Assistant Surgeon. Relieved from duty in Quarantine Service of the Philippine Islands and directed to proceed to San Francisco, Cal., and report arrival to Bureau and there await orders. March 11, 1914.

Kearny, R. A., Assistant Surgeon. Granted 20 days' leave of absence from April 20, 1914. March 13, 1914.

Watkins, J. A., Assistant Surgeon. Granted 7 days' leave of absence upon completion of course of instruction at Hygienic Laboratory. March 13, 1914.

Laughlin, J. B., Assistant Surgeon. Relieved from duty at the Gulf quarantine station, and directed to proceed to the Mobile quarantine station and assume charge, relieving Surgeon J. S. Boggess. May 11, 1914.

Bolten, Joseph, Assistant Surgeon. Relieved from duty at Detroit, Mich., and directed to proceed to Chicago, Ill., and report to the medical officer in charge of the Marine Hospital for duty and assignment to quarters. March 11, 1914.

Voegtlin, Carl, Professor of Pharmacy. Directed to proceed to Spartanburg, S. C., for conference with Passed Assistant Surgeon R. A. Herring to determine the availability of that location for special studies of metabolism in relation to the causation of pellagra. March 13, 1914.

Wickliffe, T. F., Acting Assistant Surgeon. Directed to proceed from Hyden to Jackson, Ky., to take charge of the trachoma work at the later place. March 12, 1914.

Hommon, Harry B., Sanitary Chemist. Directed to proceed to Baltimore and Luray, Md., and other places on the Potomac River watershed to make special field studies of sanitary wastes. March 17, 1914.

Stearns, W. L., Pharmacist. Reassigned to duty at the Marine Hospital, Stapleton, N. Y., effective March 24, 1914. March 13, 1914.

Smith, L. G., Pharmacist. Directed to proceed to Blackbeard's Island, to arrange for the transfer of property to the Savannah quarantine station, to be utilized in pellagra investigations. March 16, 1914.

BOARD CONVENED.

Board of medical officers convened to meet at the Bureau, March 18, 1914, for the purpose of revising the Telegraphic Cipher Code of the Service. Detail for the board: Assistant Surgeon General L. E. Cofer, chairman; Assistant Surgeon General W. C. Rucker, member; Passed Assistant Surgeon Hugh de Valin, recorder. March 17, 1914...

Official: RUPERT BLUE,
Surgeon General.

THE NUMBER OF TECHNICAL CHEMISTS IN GERMANY.

According to the annual statistics published by the Society of German Chemists in 339 German chemical works 268 were either proprietors or directors, while in all there were employed 2,467 university-trained chemists and 384 technical chemists, i. e., without a university education. There are at present twenty firms which each employ over twenty chemists; these employ altogether, in addition in forty-five independent chemists, 1,477 chemists, and 154 technical chemists; that is to say, that over half of all the chemists included in these statistics are in the employ of these twenty large firms. During the year 1912-13 winter term there were 3,082 chemical students working in the laboratories of the German universities, of whom 2,649 were Germans.—*The Chemist and Druggist* (London).

PUSHING PHOTOGRAPHIC SUPPLIES.

The business builder has one of his finest opportunities here. Most druggists realize this. In all the smaller towns you will find druggists carrying full lines of cameras and supplies and doing a roaring business. Almost every human being gets the camera craze at some stage, and this tendency is certainly good for business. It makes cameras almost as staple as shoes. Of course, not all of us can gratify our little desires, but most of us can. The business in photographic supplies is naturally very large. It may be augmented by encouraging camera clubs, or organizing the same where none exists. Every town should have a camera club. It gives the young people the right kind of recreation and will be found helpful to the standard of citizenship in that town. Towns where the young men loaf on street corners, making smart remarks and exchanging doubtful stories, are not good towns for turning boys into high-minded men. A camera club has a social side and helps out wonderfully in places where there is little offering in the way of high-class entertainment. Some dealers offer cash prizes for photographs, and some very interesting contests have been worked up along these lines.

In one contest of this kind, cash prizes were offered as follows: A first prize of $25 for the best photograph posed with living figures, second prize of $15 for the best photograph of a local building inside the town limits, third prize of $10 for the best photograph of a residence within the county but outside the town limits, and fourth prize of $10 for the best photograph of any farm scene taken inside the county. The decisions were rendered by a committee elected by the camera club with the town mayor as chairman. The entire town and county participated more or less in this contest, the local paper gave it some good advertising, and altogether a great deal of interest was aroused. An exhibition of the photographs is a good thing, and this may be held in the rooms of the camera club, with the general public invited.

It might be practicable for all dealers in photographic supplies in a certain town to combine and offer prizes open to all amateurs. These enterprises boom business, enliven the town, and are good things all around. You can always get hearty co-operation from the local press and plenty of free advertising. When a town is dragging along in a rut, it always helps when somebody starts a proposition of this kind. A friendly rivalry wakes the people up, the surrounding country becomes interested, trade is brought into town, and the town gets some good advertising. Such are the things that boards of trade in all towns are working for. The whole population benefits. Money put into circulation helps everybody.

Annual, or semi-annual exhibitions are good things. Many camera clubs have given these, in the larger cities as well as in small towns. The druggist in the large city can handle cameras and photographic supplies to advantage. He can't get all this trade, as some of it will go down town to the regular supply houses But druggists should bear in mind that a big city is only a collection of small towns. If you are out on the edge of the city you are still in the center of your own settlement. Many of your customers will buy all their supplies from you. Occasionally they go shopping down town, but by going after it, you can get the bulk of their business.—W. S. Adkins in *The National Druggist.*